CAMBRIDGE CLASSICAL STUDIES

General Editors

D. L. PAGE W. K. C. GUTHRIE A. H. M. JONES

EMPEDOCLES' COSMIC CYCLE

EMPEDOCLES' COSMIC CYCLE

A RECONSTRUCTION FROM THE FRAGMENTS AND SECONDARY SOURCES

BY

D. O'BRIEN

Fellow of Gonville and Caius College, Cambridge

CAMBRIDGE
AT THE UNIVERSITY PRESS
1969

Published by the Syndics of the Cambridge University Press
Bentley House, 200 Euston Road, London N.W. 1
American Branch: 32 East 57th Street, New York, N.Y. 10022

© Faculty Board of Classics, University of Cambridge, 1969

Library of Congress Catalogue Card Number: 68–10330
Standard Book Number: 521 05855 4

Printed in Great Britain
at the University Printing House, Cambridge
(Brooke Crutchley, University Printer)

CONTENTS

Acknowledgment *page vii*

System of References and Abbreviations *ix*

1 THE PROPOSED RECONSTRUCTION 1

2 REST AND MOVEMENT 4

The Sphere alone was at rest and at all other times the elements were moving

3 SPEED 46

Speed rose and fell with the rise and fall of Strife's power

4 TIME 55

The Sphere lasted for as long as the world of plurality and movement. The time of total Strife was momentary

5 THE PLACE OF LOVE AND STRIFE 104

During the period of her increasing power Love expanded from the centre of the divided elements and pushed Strife to the circumference. As Strife's power increased Strife moved inwards from the circumference and pushed Love into the centre of the elements

6 THE SHAPE OF LOVE AND STRIFE 127

Throughout the cycle Love was stretched out in the form of a sphere, while Strife surrounded Love in an even layer

7 THE SEPARATED ELEMENTS 146

The fully separated elements were arranged in concentric spheres of fire, air, water and earth

8 THE CYCLIC SYSTEM 156

Alternate worlds of increasing Love and increasing Strife were part of an endless succession of the one and the many

9 THE ZOOGONICAL STAGES *page* 196

Under increasing Strife there were born whole-natured creatures, then men and women, then monsters and separate limbs. The same creatures were born in the reverse order under increasing Love

10 CONCLUSION 237

The significance of the cosmic cycle in the development of Greek philosophy

Notes

1 Aristotle's understanding of ἀκίνητοι κατὰ κύκλον 252
2 Aristotle's criticism of the *dine* 262
3 The reading θέλυμνα fr. 21. 6 266
4 The storm of the elements 268
5 The interpretation of fr. 30. 1 274
6 Simplicius' quotations of Empedocles 276
7 The order of separation of the elements and the beginning of rotation 287
8 Like to like 301
9 The interpretation of fr. 26. 1–2 and 7 314
10 The identity of the *daimones* in fr. 59 325

Bibliography 337

Author/date index to the bibliography 399

Index locorum 403

General index 445

ACKNOWLEDGMENT

My thanks are due to Professor W. K. C. Guthrie for his careful supervision, especially during the more formative stages of this work. I am also very conscious of the improvements that have resulted from the criticisms of two other scholars, Professor F. H. Sandbach and Professor W. J. Verdenius. Miss Patricia Smith kindly made a number of minor corrections to the text.

SYSTEM OF REFERENCES AND ABBREVIATIONS

A full reference is given the first time a modern work is cited. Thereafter the work is referred to by the author's name alone in the case of editions or partial editions of the fragments, including Bignone and Diels' *Poetarum philosophorum fragmenta*, and by the author's name and the year of publication in the case of most other works. In either case the full reference may be obtained from the bibliography, which is arranged chronologically with an alphabetical index of authors' names.

For a few well-known works of a general nature abbreviations are used with the author's name instead of the year of publication, thus:

ACP H. Cherniss, *Aristotle's criticism of Presocratic philosophy*, 1935.

DK H. Diels, *Fragmente der Vorsokratiker*, 1st edition 1903: the pagination remains unchanged from the 5th edition by W. Kranz 1934–7.

EGP J. Burnet, *Early Greek philosophy*, 1st edition 1892, 4th edition (a reprint of the 3rd edition) 1930.

Science hellène P. Tannery, *Pour l'histoire de la science hellène*, 1st edition 1887, 2nd edition by A. Diès 1930.

ZN E. Zeller, *Die Philosophie der Griechen*, 1st edition 1844, 6th edition of Teil 1, Hälfte 1–2, by W. Nestle 1919–20.

The following abbreviations are used for periodicals:

A.G.P. *Archiv für Geschichte der Philosophie.*
A.J.P. *American Journal of Philology.*
B.F.C. *Bollettino di Filologia Classica.*
B.Ph.W. *Berliner Philologische Wochenschrift.*
C.P. *Classical Philology.*
C.Q. *Classical Quarterly.*
C.R. *Classical Review.*
G.C.F.I. *Giornale Critico della Filosofia Italiana.*
H.S.C.P. *Harvard Studies in Classical Philology.*
J.A.W. *Jahresbericht über die Fortschritte der classischen Alterthumswissenschaft*, herausgegeben von C. Bursian.
J.H.I. *Journal of the History of Ideas.*
J.H.S. *Journal of Hellenic Studies.*
P.C.P.S. *Proceedings of the Cambridge Philological Society.*

P.Q.	*Philosophical Quarterly.*
P.R.	*Philosophical Review.*
R.E.G.	*Revue des Études Grecques.*
R.E.L.	*Revue des Études Latines.*
R.F.I.C.	*Rivista di Filologia e di Istruzione Classica.*
Rh.M.	*Rheinisches Museum.*
S.B.B.	*Sitzungsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Philosophisch-historische Klasse.*
T.A.P.A.	*Transactions of the American Philological Association.*
W.S.	*Wiener Studien.*
Z.A.W.	*Zeitschrift für die Alterthumswissenschaft.*

The following abbreviations are used for works of reference and collections of texts:

BT	*Bibliotheca Scriptorum Graecorum et Romanorum Teubneriana.*
Budé	*Collection des Universités de France, publiée sous le patronage de l'Association Guillaume Budé.*
CAG	*Commentaria in Aristotelem Graeca, edita consilio et auctoritate Academiae Litterarum Regiae Borussicae.*
CSEL	*Corpus Scriptorum Ecclesiasticorum Latinorum.*
Dox.	H. Diels, *Doxographi graeci, collegit recensuit prolegomenis indicibusque instruxit H.D.*, Berolini 1879.
GCS	*Die Griechischen Christlichen Schriftsteller der ersten drei Jahrhunderte.*
H.K.A.	*Handbuch der Klassischen Alterthumswissenschaft.*
LCL	*Loeb Classical Library.*
L.S.J.	*A Greek–English Lexicon* by Liddell, Scott and Jones.
OCT	*Scriptorum Classicorum Bibliotheca Oxoniensis.*
PG	Migne's *Patrologiae Cursus Completus, Series Graeca.*
PL	Migne's *Patrologiae Cursus Completus, Series Latina.*
R.E.	Pauly–Wissowa's *Real-Encyclopädie der classischen Alterthumswissenschaft.*

I have not been able to take account of work published on Empedocles after the end of 1965. In a few cases I have taken notice of critical editions of ancient texts that appeared before the end of 1966.

CHAPTER I

THE PROPOSED RECONSTRUCTION

Empedocles' world is made of four elements, earth, air, fire and water. These are ruled by two forces, Love and Strife. Love is the cause of happiness and unity. Strife is the cause of separation and misery.

These two forces rule in turn. Strife makes the elements many, and so long as the elements are many they are moving. Love makes the elements into a single whole, the Sphere. In the Sphere the elements are at rest. The period of unity and rest under Love lasts for as long as the period of plurality and movement under Strife.

During the period of plurality and movement the elements are first increasingly separated by Strife and then, as soon as they have been fully separated into four distinct wholes, they begin to be increasingly united by Love. In this way the elements pass through varying stages of separation and of combination. In one of these is the world in which we are living now.

There are thus two great alternations in the life of the world. First there is the major alternation between one and many, rest and movement. Secondly there is the minor alternation within the period of movement and plurality. This is the alternation between the world of increasing Strife which leads away from the Sphere, and the world of increasing Love which leads back to the Sphere.

Accompanying the minor alternation there is a difference of speed. For some time after the Sphere has been disrupted the elements still move slowly. They gather speed as Strife prevails more and more, until their maximum speed is reached with the total victory of Strife, when the elements are fully separated. As the elements start returning to the Sphere under Love's influence, their speed gradually decreases, until finally they sink to rest again in the Sphere.

During the time of her complete power Love is extended throughout the Sphere in which all the elements are evenly

mingled. Strife is outside the Sphere, spread in an even layer all over its outer surface. When the reign of the Sphere comes to an end, Strife begins to break into the Sphere from the outside. Love is forced increasingly towards the centre, as the elements are separated more and more into four concentric spheres of fire, air, water and earth, passing through the condition in which we see them now. At the end of this period Strife is totally dominant. The elements are completely separated into their concentric spheres. Love is confined to the centre and isolated there.

Without delay, the opposite world of increasing Love begins. Love moves outwards from the centre. As she does so, she unites the elements, binding them into mortal combinations that as time goes on approximate more and more to the perfect unity of the Sphere. Strife is forced outwards towards the circumference of the world. Finally Love has regained full control of the elements. They are fully mingled and made into the Sphere. Strife is on the outside.

Our own world falls in the period of movement when the power of Strife is on the increase. This makes it a time of ever greater separation and unhappiness. At the beginning of the period of increasing Strife, after the disruption of the Sphere, there were formed whole-natured creatures. Since Love was then still powerful, these creatures were more harmonious beings than we are. The elements in them were more harmoniously mingled, and in particular they had an equal share of fire and water, the male and female element respectively. As the power of Strife increased, these whole-natured creatures were separated into men and women. As time goes on, and the power of Strife in the world becomes even greater, the different parts of our bodies will no longer be able to hold together. They will be torn into separate pieces. For a time perhaps they will cling together in monstrous combinations. Then separate limbs will wander disconsolately about the world on the eve of the dissolution of all things into four separate elements.

After this catastrophe the world of increasing Love will begin. The same events will now be repeated but in the reverse order. First there will grow up from within the earth the separate parts of living bodies: bones and flesh, eyes, heads and so forth. These

will then cling together as Love increases the desire of all things for unity. The combinations they form will be monstrous at first: human heads on a cow's body, creatures trailing hundreds of hands and arms, and so on. The power of Love continues to increase, and monsters will give way to creatures no different from ourselves, but with a happier fate ahead of them. For with the power of Love still increasing, men and women then will unite into whole-natured forms and finally be assumed into the blissful Sphere.

When the time allowed for the Sphere has come to an end, the world of increasing Strife will begin again. And so the two alternations, between being one and being many and between becoming one and becoming many, will continue endlessly.

CHAPTER 2

REST AND MOVEMENT

INTRODUCTION

The first question is the place of rest and movement in the cosmic cycle.[1] It is obvious that in our present world the elements are moving, and so too that they will have been moving in the world parallel to ours under the influence of increasing Love. But what were the elements doing in the intervening times: was the Sphere moving or at rest? Were the elements moving or at rest when Strife had separated them most fully?[2]

The answer which will be given here is that the Sphere was alone at rest and that at all other times the elements were moving. In this way Empedocles' world alternated between rest and movement at the same time as it alternated between being one and being many.

Bignone would apparently subscribe to this view. He refers to an alternation of this kind several times in a general way.[3] But his evidence is scattered and given more or less incidentally.[4] Consequently he has been ignored. Robin perhaps has Bignone's view in mind.[5]

[1] This question is taken first, because to do so affords the clearest way of disentangling the ancient evidence on the cosmic cycle as a whole. Recently some doubts have been cast on the very existence of a cosmic cycle in Empedocles. Readers who feel that this question should be primary may like to turn first to chapter 8, pp. 156–95.

[2] There has recently been a tendency to use the word 'Sphere' to mean the world at any time, e.g. by Raven, in Kirk and Raven, *The Presocratic philosophers, a critical history with a selection of texts* (Cambridge, 1957), p. 353 n. 2. This practice has presumably arisen either through a loose translation and a questionable understanding of κύκλου in fr. 35. 10; or perhaps on the grounds that even after the Sphere described in fr. 27 the world continues to be spherical, or roughly spherical, in shape (cf. p. 173 n. 6 below); or perhaps from the misuse of fr. 27 as a description of the οὐρανός by later commentators, Achilles *Isag.* 6, p. 37. 10–13 Maass, Anon. 1 *in Aratum* 6, p. 97. 24–9 Maass. Throughout the present work 'Sphere' will be used exclusively in Empedocles' sense, to mean the elements bound together by Love in a non-cosmic state, as described in fr. 27.

[3] *Empedocle, studio critico, traduzione e commento delle testimonianze e dei frammenti* (Torino, 1916), pp. 129–30, 223, 234, 423.

[4] Pp. 526 n. 2, 562 n. 3, 592 n. 1, 600 n. 1, 604.

[5] *La pensée grecque et les origines de l'esprit scientifique* (Paris, 1923), p. 125.

The notion that the separated elements were moving is part of Tannery's interpretation,[1] followed with some reservations by Ferrari.[2] But this feature of Tannery's interpretation is not worked up into a full reconstruction of rest and movement in Empedocles, and is part of Tannery's general view that total Strife is a time of chaos following closely on the disruption of the Sphere. This view, we shall argue later, is doubly erroneous (pp. 146ff. and 158ff.).

Zeller's view was that both the Sphere and the separated elements were at rest.[3] In this he is followed by Winnefeld,[4] Martin,[5] Cornford,[6] and apparently by Minar, in so far as he follows an orthodox view of the cycle.[7] Zeller's view has the support of Simplicius, whose testimony on this point however proves to be of no value, as we shall see (pp. 26–30).

Zeller also suggested the possibility that Empedocles spoke of the Sphere as at rest, but failed to describe the condition of the elements separated under Strife.[8] This interpretation has been adopted by Millerd, with some reservations,[9] and by Cherniss.[10]

More generally, Kranz claims that total Strife cannot have been described at all.[11] Kranz gives as his reason: 'Das ergibt sich aus

[1] *Pour l'histoire de la science hellène*, 2nd edition by A. Diès (Paris, 1930) (henceforward *Science hellène*), p. 319.

[2] 'La filosofia di Empedocle', *Rivista Italiana di Filosofia* anno 6 (1891), vol. 2, p. 62.

[3] *Die Philosophie der Griechen in ihrer geschichtlichen Entwicklung*, Teil 1, Hälfte 2, 6th edition by W. Nestle (Leipzig, 1920) (henceforward ZN), p. 971.

[4] *Die Philosophie des Empedokles*, in *Beilage zum Programm des Grossherzoglichen Gymnasiums in Donaueschingen* (Rastatt, 1862), p. 22.

[5] 'Mémoire sur les hypothèses astronomiques des plus anciens philosophes de la Grèce étrangers à la notion de la sphéricité de la terre', *Mémoires de l'Institut National de France, Académie des Inscriptions et Belles-Lettres*, 29, 2ème partie (1879), pp. 213–19.

[6] Loeb edition of Aristotle's *Physics* (1934), notes on 250b22 and 26, vol. 2, pp. 268–71.

[7] 'Cosmic periods in the philosophy of Empedocles', *Phronesis*, 8 (1963), 130 and 135, cf. below, pp. 160–1.

[8] ZN, p. 971 n. 1.

[9] *On the interpretation of Empedocles* (Dissertation, Chicago, 1908), pp. 53–4.

[10] *Aristotle's criticism of Presocratic philosophy* (Baltimore, 1935) (henceforward *ACP*), p. 175 n. 130.

[11] *Empedokles, antike Gestalt und romantische Neuschöpfung* (Zürich, 1949), p. 49.

der Sache selbst: Ungeformtes kann man nicht schildern.'[1] Empedocles' description of the world under total Strife, apart from the question of movement, we shall consider separately in chapter 7 (pp. 146 ff.).

It has also been thought that there was no time of rest in Empedocles' world, that movement there was continuous. This is the view of Karsten,[2] and in a doubtful and confused manner of Sturz.[3] Karsten's interpretation is essentially part of a larger thesis which in one way or another would exclude the whole interpretation of Empedocles' cosmic system as an alternation in the literal sense between the one and the many. This thesis has recently been revived. The questions which it involves we shall again treat separately, in chapter 8 (pp. 156 ff.).

Thus it has been held:

1. That there was no time of rest: Karsten, Sturz.

2. That there were two times of rest: Zeller, Winnefeld, Martin, Cornford, perhaps Minar.

3. That there was one time of rest, the Sphere, with the fully separated elements left undescribed: Zeller, Millerd, Cherniss.

4. That there was one time of rest, the Sphere, and that at all other times, including total Strife, the elements were moving: Bignone and the present work.

The evidence is fairly diverse, and has not previously been studied in its entirety. The outline of our argument will be as follows. Aristotle says in the *Physics* that Empedocles' world alternated between rest and movement. The precise meaning of this statement has to be determined from passages elsewhere in Aristotle's works. These show that Aristotle thought that the Sphere alone was at rest. Aristotle's testimony receives confirmation from the fragments, confirmation that is nearly but not quite conclusive. Simplicius unknowingly contradicts Aristotle. But Eudemus and in part Plutarch share Aristotle's view. There is

[1] P. 354 n. 45.

[2] *Empedoclis Agrigentini carminum reliquiae, de vita eius et studiis disseruit, fragmenta explicuit, philosophiam illustravit S.K.* (Amstelodami, 1838), pp. 363–9, cf. pp. 381–5.

[3] *Empedocles Agrigentinus, de vita et philosophia eius exposuit carminum reliquias ex antiquis scriptoribus collegit recensuit illustravit praefationem et indices adiecit M.F.G.S.* (Lipsiae, 1805), pp. 271–2.

some worthless evidence in *De MXG*. The conclusion that the Sphere alone was at rest and that at all other times the elements were moving fits in well with the common fifth-century association of rest with unity and of movement with plurality.

The correct division of the cycle between rest and movement, besides being important in itself, is essential for much of what comes later. For that reason it is treated here exhaustively.

ARISTOTLE 'PHYSICS'

In the preliminaries to his analysis of movement and its cause in the last book of the *Physics*, Aristotle several times says that Empedocles' world moved and was at rest in turn:

250b21–251a5. ὅσοι δ' ἕνα (*sc.* κόσμον εἶναί φασιν) ⟨ἢ ἀεὶ Ross⟩ ἢ μὴ ἀεί, καὶ περὶ τῆς κινήσεως ὑποτίθενται κατὰ λόγον. εἰ δὴ ἐνδέχεταί ποτε μηδὲν κινεῖσθαι, διχῶς ἀνάγκη τοῦτο συμβαίνειν· ἢ γὰρ ὡς Ἀναξαγόρας λέγει . . . ἢ ὡς Ἐμπεδοκλῆς ἐν μέρει κινεῖσθαι καὶ πάλιν ἠρεμεῖν, κινεῖσθαι μὲν ὅταν ἡ φιλία ἐκ πολλῶν ποιῇ τὸ ἓν ἢ τὸ νεῖκος πολλὰ ἐξ ἑνός, ἠρεμεῖν δ' ἐν τοῖς μεταξὺ χρόνοις, λέγων

> οὕτως ἦι μὲν ἓν ἐκ πλεόνων μεμάθηκε φύεσθαι,
> ἠδὲ πάλιν διαφύντος ἑνὸς πλέον' ἐκτελέθουσιν,
> τῆι μὲν γίγνονταί τε καὶ οὔ σφισιν ἔμπεδος αἰών·
> ἦι δὲ τάδ' ἀλλάσσοντα διαμπερὲς οὐδαμὰ λήγει,
> ταύτηι δ' αἰὲν ἔασιν ἀκίνητοι κατὰ κύκλον.

δεῖ γὰρ ὑπολαβεῖν λέγειν αὐτὸν 'ἦι δὲ τάδ' ἐνθένδε [τὰ] ἀλλάσσοντα'.[1]

252a3–10. εἰ δὴ ταῦτ' ἀδύνατα, δῆλον ὡς ἔστιν ἀίδιος κίνησις, ἀλλ' οὐχ ὁτὲ μὲν ἦν ὁτὲ δ' οὔ· καὶ γὰρ ἔοικε τὸ οὕτω λέγειν πλάσματι μᾶλλον. ὁμοίως δὲ καὶ τὸ λέγειν ὅτι πέφυκεν οὕτως καὶ ταύτην δεῖ νομίζειν εἶναι ἀρχήν, ὅπερ ἔοικεν Ἐμπεδοκλῆς ἂν εἰπεῖν, ὡς τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος ὑπάρχει τοῖς πράγμασιν ἐξ ἀνάγκης, ἠρεμεῖν δὲ τὸν μεταξὺ χρόνον.

252a19–21. διόπερ βέλτιον ὡς Ἐμπεδοκλῆς, κἂν εἴ τις ἕτερος εἴρηκεν οὕτως ἔχειν, ἐν μέρει τὸ πᾶν ἠρεμεῖν καὶ κινεῖσθαι πάλιν.

There are two difficulties in Aristotle's evidence here.

1. The elements move when they are coming together or being drawn apart, and they are at rest 'in the between time(s)', ἐν τοῖς

[1] For the reading of the sentence δεῖ . . . ἀλλάσσοντα see pp. 259–60 below.

μεταξὺ χρόνοις, 250b29, or τὸν μεταξὺ χρόνον, 252a9. These phrases are ambiguous, for there are two possible in between times, the Sphere and the complete victory of Strife. It is not clear whether Aristotle means that the elements are at rest in one in between time or in both in between times, and if in one only then in which in between time.

Von Arnim argued from the use of the singular that the Sphere alone was intended to be at rest.[1] Millerd replied that the singular meant each in between time, and that Aristotle intended there to be two periods of rest in each cycle.[2] Millerd is followed in more detail by Bignone,[3] and briefly by Capelle.[4]

In fact the difference between singular and plural is no evidence either way. The singular could mean each in between time, and so two in every cycle, as well as one in between time. The plural could mean an endless series of single in between times, as well as both in between times.

2. The second difficulty is that Aristotle has been said to misunderstand the verses which in the first passage he quotes from Empedocles, fr. 26. 8–12. In these lines Empedocles says that the elements are always ἀκίνητοι κατὰ κύκλον. By this he means—the preceding lines make it clear—that the movement of the elements is constantly repeated, so that their movement is as it were motionless. But Aristotle is said to have taken ἀκίνητοι to mean literally motionless, and so to refer to a time of rest in between movement. Otherwise, it is argued, the lines cannot have been thought to illustrate what they are intended to illustrate, the alternation of movement and rest.

If Aristotle has misunderstood the lines in this way, then the value of his evidence on this point is somewhat diminished. For his statement that Empedocles' world included a time of rest might conceivably have had no other foundation than his misunderstanding of this verse.

Neither of these difficulties in Aristotle's evidence proves insurmountable.

[1] 'Die Weltperioden bei Empedokles', *Festschrift Th. Gomperz dargebracht* (Wien, 1902), pp. 17–18.

[2] (1908), p. 54 n. 1.

[3] Pp. 591–2.

[4] *Die Vorsokratiker, die Fragmente und Quellenberichte übersetzt und eingeleitet* (Leipzig, 1935), p. 199 n. 2.

It is unlikely in itself that Aristotle should so crudely misunderstand the language of Empedocles, and a close examination of his remarks at this point will show that most likely Aristotle has not simply misunderstood ἀκίνητοι, though he may have misunderstood the lines in a less obvious way. The question is somewhat complicated, and since it bears only indirectly on the reconstruction of the cycle it is best reserved for separate discussion.[1]

The other difficulty, the precise meaning of 'in the between time(s)', is more important for the reconstruction of Empedocles. Aristotle's intention can be determined by reference to other passages where Aristotle speaks of movement or rest in Empedocles' world, from the *De generatione et corruptione* and the *De caelo*.

ARISTOTLE 'DE GENERATIONE ET CORRUPTIONE'

That Aristotle thought of the Sphere as motionless is suggested by a passing remark that the elements arose from the Sphere 'through movement', 315a19–23:

ἄδηλον δὲ καὶ πότερον ἀρχὴν αὐτῶι[2] θετέον τὸ ἓν ἢ τὰ πολλά, λέγω δὲ πῦρ καὶ γῆν καὶ τὰ σύστοιχα τούτων. ἦι μὲν γὰρ ὡς ὕλη ὑπόκειται, ἐξ οὗ μεταβάλλοντα διὰ τὴν κίνησιν γίνονται γῆ καὶ πῦρ, τὸ ἓν στοιχεῖον.

This would seem to imply that before the elements arose from the Sphere there was no movement. It would be possible to suppose that movement existed in the Sphere without having a separative force. But that would not seem to be the most direct implication of Aristotle's words.

That Aristotle's words do in fact imply that the Sphere is at rest will be confirmed by the passages that follow from the *De caelo*. For these, so we shall argue, imply that the fully separated elements were moving; and therefore there is no time other than the Sphere for the period of rest spoken of in the *Physics* (cf. p. 15 below).

[1] See note 1, pp. 252–61, where full references to previous views are given.

[2] αὐτῶι, *sc.* Empedocles, EJ. αὐτῶν, *sc.* the elements and their specific differences, HL. αὐτὰ fecit F. For a similar doxographical αὐτῶι see *Met.* 985a24 and 1000b3 and 10.

ARISTOTLE 'DE CAELO'

Two remarks from a passage in the *De caelo* indicate that at the opposite end of the world cycle, the time of total Strife, Aristotle thought of the elements as being in movement.

'DE CAELO' 301a11–20

In the course of his demonstration that the movement of the elements is natural and eternal Aristotle praises Anaxagoras for having started his cosmogony from a unity that was at rest. By this Anaxagoras shows that he appreciates the primacy of natural movement. For unnatural movement cannot exist without natural movement, and natural movement cannot exist without giving rise to an ordered universe. Thus without a world or before a world began there could not be disordered movement on its own, as Plato and the Atomists thought: there could not be any movement, only rest.

Most other cosmogonists, Aristotle now says, followed Anaxagoras in bringing their elements together somehow and then introducing movement and diversity. It would be illogical, he continues, to go against this and try to make the world arise from elements that were separate and in movement. That is why Empedocles leaves out a description of the origin of the heavens at the beginning of the period of increasing Love. For he could not have formed the heavens from elements that were separate to start with, and were then joined together by Love. The elements in a completed world are already separated. They must have arisen therefore from a unity where they were not separated:

ἔοικε δὲ τοῦτό γε αὐτὸ καλῶς Ἀναξαγόρας λαβεῖν· ἐξ ἀκινήτων γὰρ ἄρχεται κοσμοποιεῖν. πειρῶνται δὲ καὶ οἱ ἄλλοι συγκρίνοντές πως πάλιν κινεῖν καὶ διακρίνειν. ἐκ διεστώτων δὲ καὶ κινουμένων οὐκ εὔλογον ποιεῖν τὴν γένεσιν. διὸ καὶ Ἐμπεδοκλῆς παραλείπει τὴν ἐπὶ τῆς φιλότητος (*sc.* τοῦ οὐρανοῦ γένεσιν)·[1] οὐ γὰρ ἂν ἠδύνατο συστῆσαι τὸν οὐρανὸν ἐκ κεχωρισμένων μὲν κατασκευάζων, σύγκρισιν δὲ ποιῶν διὰ τὴν φιλότητα· ἐκ διακεκριμένων γὰρ συνέστηκεν ὁ κόσμος τῶν στοιχείων, ὥστ' ἀναγκαῖον γίνεσθαι ἐξ ἑνὸς καὶ συγκεκριμένου.

[1] Bignone, p. 560 n. 2, see pp. 175–6 below.

The most obvious—indeed the only possible—interpretation of this passage is that Empedocles is introduced as an example of someone who was committed to making the world arise from elements that were separated *and moving*, ἐκ διεστώτων δὲ καὶ κινουμένων οὐκ εὔλογον ποιεῖν τὴν γένεσιν.

A moment's doubt might perhaps be felt as to whether the *full* contrast between mixed *stationary* and separate *moving* elements is meant to be kept up throughout the passage. Is Empedocles perhaps meant to illustrate no more than that separate elements cannot be said to arise from a condition where they are already separated?

This interpretation would deprive the reference to Empedocles of any relevance to Aristotle's main argument. The difference between precosmic movement and precosmic rest is what Aristotle has chiefly in mind. It is this that is relevant to his attack on Plato and the Atomists, who made disordered movement primary and independent of natural movement, 300b8–25. It is the difference between mixture and separation that is incidental to Aristotle's theme.

If therefore Empedocles' separated elements had been at rest, he would have been on the same side as Anaxagoras in this analysis. For then both would have agreed that movement is possible only within an ordered universe, and so that natural movement must be primary.

Of course for Empedocles' precosmic elements to be separate as well as moving is an added absurdity. Separation must arise from unity, just as movement must spring from rest. But if Empedocles' elements had been only separate and not moving, then in this context there would have been no point in the contrast with Anaxagoras.

This passage then shows that in Aristotle's mind there can have been no time of rest between increasing Strife and increasing Love. For only if the elements under total Strife were always moving will Empedocles provide an example of someone who was committed to *starting* a cosmogony from elements that were separate *and* in movement.

'DE CAELO' 300b25–31

Earlier in the same passage on the natural movement of the elements Aristotle again lets it be seen that he thinks of the fully separated elements as moving. In the *Timaeus*, he argues, the disorderly movement of the elements must have been natural or enforced, 300b16–19. It has already been shown that enforced movement cannot exist on its own, 300a20–b8. But if the supposedly precosmic movement of the elements in the *Timaeus* were natural, a world would already have been formed, 300b19–25. Aristotle now continues:

> One might further ask whether it was not in fact possible for elements moving in disordered fashion still (καί) to form, some of them, mixtures such as those from which natural bodies arise, I mean things like bones and flesh, as Empedocles says happens under Love. For he tells how,
>
> 'There sprouted many heads without a neck'.
>
> ἔτι δὲ τοσοῦτον ἐπανέροιτ' ἄν τις, πότερον [δυνατὸν ἦ] οὐχ οἷόν τ' ἦν κινούμενα ἀτάκτως καὶ μίγνυσθαι τοιαύτας μίξεις ἔνια, ἐξ ὧν συνίσταται τὰ κατὰ φύσιν συνιστάμενα σώματα, λέγω δ' οἷον ὀστᾶ καὶ σάρκας, καθάπερ Ἐμπεδοκλῆς φησὶ γίνεσθαι ἐπὶ τῆς φιλότητος· λέγει γὰρ ὡς
>
> πολλαὶ μὲν κόρσαι ἀναύχενες ἐβλάστησαν.

Allan rightly argues for the suppression of δυνατὸν ἦ, which is omitted by the first hand in E and by Simplicius.[1] He is followed by Longo,[2] but not by Guthrie.[3] The form of the question, Allan rightly sees, is incredulous. Aristotle supposes that it *was* possible for elements in allegedly disordered movement to form bones and flesh. The implication of Aristotle's argument is that, since bones and flesh *were* formed, therefore the movement of the elements was not in fact entirely disordered.

From our point of view, the difficulty here is to know how far back the comparison with Empedocles is meant to extend. Is Empedocles introduced only to explain what bones and flesh are?

[1] 'On the manuscripts of the *De caelo* of Aristotle', *C.Q.* 30 (1936), 19.

[2] Longo, *Aristotele De caelo, introduzione, testo critico, traduzione e note di O.L.* (Firenze, 1962).

[3] Loeb edition of the *De caelo* 1939, *ad loc.* Moreaux, Budé edn 1965, includes δυνατὸν ἦ in his translation, but not in his text.

Or does Love's world illustrate the rise of such things from disordered motion? The former is more or less the opinion of Alexander, in that he regards the introduction of Love, and of animal parts formed by Love, as offering a paradigm of the power of mixture.[1] The latter is the opinion of Simplicius.[2]

There is no obscurity in the idea of bones and flesh as such. It would not be at all typical of Aristotle's conciseness suddenly to expand such a simple idea. Least of all would he, or anyone else, want to explain bones and flesh by the example of neckless heads. This makes it unlikely that Aristotle is saying no more than, 'bones and flesh, such things as Empedocles says arise under Love, when he tells how many neckless heads sprang up'. Alexander has evidently been misled by his interpretation of ἐπὶ τῆς φιλότητος as a world of forms. For Alexander supposes that Love has no part to play in the sensible world.[3]

As Simplicius remarks, *De caelo* 586. 6, this passage διὰ βραχυλογίαν ἀσαφέστερον δοκεῖ. It might possibly be argued that bones and flesh are not themselves τὰ κατὰ φύσιν συνιστάμενα σώματα, but the things that make up natural bodies; and the reference to Empedocles, it might then be said, is meant to illustrate how things like flesh and bone make up more complex bodies.

This is again an unlikely interpretation of Aristotle's words. The distinction of homoeomerous and anhomoeomerous substances is of no importance here. In Aristotle's eyes the one is scarcely more able to arise from random movement than is the other. But even if this were Aristotle's point, it is again hardly likely that he would choose to explain the formation of anhomoeomerous from homoeomerous bodies by the example of Empedocles' neckless heads.

To make good sense of the paragraph we must take the comparison with Empedocles back to the phrase which expresses Aristotle's main point, whether or not mixtures like flesh and bone can arise from random movement: κινούμενα ἀτάκτως καὶ μίγνυσθαι τοιαύτας μίξεις ἔνια 'etc. The comparison with Empedocles now follows perfectly naturally: 'One might ask whether

[1] *Ap.* Simpl. *De caelo* 586. 25–9. [2] *De caelo* 586. 29–587. 26.
[3] See pp. 100–1 below and cf. p. 173 n. 5 below.

it was not in fact possible for elements *in disorderly movement* still to form things like flesh and bone, as Empedocles says happens under Love, when he tells how (*sc.* from elements *in disorderly movement*) many neckless heads sprang up.'

From this passage alone it would perhaps be difficult to know for certain whether the movement from which Empedocles' neckless heads and flesh and bones arose was primary, or had been initiated by Love from a time of rest. All that is perhaps essential for the comparison with Plato is that natural bodies should arise from unnatural movement. At the beginning of Love's world Strife must still have been the predominant force, and in Aristotle's eyes movement largely controlled by Strife would on first thoughts be violent or unnatural movement.[1] The comparison need not perhaps demand that before this unnatural movement there should be no time of rest.

However, here as throughout the later passage it is primary, precosmic movement that is Aristotle's main concern. If here, as later, Aristotle is not thinking of any time of rest immediately before Love's world, then the parallel with the *Timaeus* is complete and the brevity of Aristotle's comparison is understandable. In the cosmogony of the *Timaeus* as in Love's world the elements were in existence and moved before god – the Demiurge or Love – came to fashion them into living creatures and their parts. Aristotle sees this precosmic movement persisting as it were in the things which are made out of the elements, κινούμενα ἀτάκτως καὶ μίγνυσθαι τοιαύτας μίξεις etc. His question implies that since in this way the precosmic movement of the elements becomes part of the ordered universe, it cannot have been entirely disordered and unnatural. Plato and Empedocles have tried to imagine unnatural movement before the world began, and failed.[2]

[1] See *De gen. et corr.* 333 b 22–33, cf. b 16–20. The point of this passage is that Aristotle expects Love to be the cause of natural movement and Strife the cause of unnatural movement. He argues that in fact the reverse turns out to be the case, for his purpose is to indicate a lack of consistency in Empedocles' system.

[2] The connection between Plato's and Empedocles' views on this point was remarked upon in antiquity by Philoponus, *De aet. mundi* 611. 18–24 Rabe, and is discussed at some length by Bignone, pp. 605–11.

ARISTOTLE: CONCLUSION

These three parts of Aristotle's evidence should be taken together. In the *Physics* Aristotle says that Empedocles' world alternated between movement and rest. In the *De caelo* he twice fairly clearly implies that the fully separated elements were moving. This confirms the implication of the *De generatione et corruptione* that the Sphere was at rest. For if the fully separated elements were moving, there is no other time when the elements can have been at rest except in the Sphere.

Further, since the *De caelo* shows that Aristotle thinks of the fully separated elements as moving, it follows that in the *Physics* Aristotle is thinking of a single period of rest. The use of the plural in the earlier passage, ἐν τοῖς μεταξὺ χρόνοις, will mean therefore an endless series of single in between times. The context of the passage, the question of the eternity or otherwise of movement, makes it entirely plausible for Aristotle to think of the Sphere in this way, not as a single event in the life of the world, but as a constantly recurring feature of the cosmic cycle. In the later passage Aristotle is thinking instead of the cause of alternation, or the lack of a cause. It is natural enough for him to change therefore to the singular τὸν μεταξὺ χρόνον as indicating the contrast between each Sphere and the world of movement that follows.[1]

ARISTOTLE: MINORA

A few other passages in Aristotle require a brief mention for the sake of completeness.

1. A passage in the first book of the *Physics*, 184b15–22, perhaps provides slight confirmation that the separated elements were moving, in that the analysis there fails to take account of there being several precosmic *archai* at rest (see p. 40 below).

2. Aristotle's criticism of the *dine* at *De caelo* 295a29–32 has been thought, but wrongly, to imply that the separated elements

[1] Empedocles himself, we shall argue, speaks in the same breath of one cycle and of many cycles: see pp. 108–12 on the combination of mood and tense in fr. 35.

were at rest. The true purpose of Aristotle's criticism is discussed separately (see note 2, pp. 262–5 below).

3. An earlier remark in the *De caelo* has also been thought to imply that the world, or at least the rotation of the heavens, will one day come to a standstill, 284a24–6: οὔτε δὴ τοῦτον τὸν τρόπον ὑπολεπτέον (that the firmament or the heavenly bodies are by nature heavy and are kept aloft by Atlas), οὔτε διὰ τὴν δίνησιν θάττονος τυγχάνοντα φορᾶς τῆς οἰκείας ῥοπῆς ἔτι σώιζεσθαι τοσοῦτον χρόνον, καθάπερ Ἐμπεδοκλῆς φησίν. The passage is taken in this sense by Martin.[1] But ἔτι seems more likely to imply that Aristotle, not Empedocles, doubts the efficacy over a long period of Empedocles' *dine*.[2]

Even if the passage were taken in Martin's sense, it would not necessarily support the view of two rest periods in the cycle, for the reference could be to the immobility of the Sphere, not to the condition of the fully separated elements.

4. In a passage from the *Metaphysics*, 1050b22–4, which is also cited by Martin in his note,[1] Aristotle mentions people who are afraid that sun, stars and ὅλος ὁ οὐρανός may one day come to a standstill. This is referred to Empedocles and οἱ περὶ αὐτόν by Alexander, *Met.* 592. 31–2. In a way this is fair enough, since Empedocles does not believe in strictly eternal movement, which is primarily the point at issue in Aristotle, and since in the *De caelo*, in the passage cited under 3 above, Empedocles is grouped loosely with those who believe in Atlas' holding up the sky, and these are the people who are criticized here in the *Metaphysics* for their 'mechanical' explanation of the permanence of the heavens. But Aristotle does not name Empedocles in the present passage of the *Metaphysics*, and it seems unlikely that his criticism is aimed primarily at Empedocles, since Aristotle's words describe more the fear of a possibility than the expectation of a fact.

However, it may be that Aristotle includes Empedocles in his criticism. But if he does so, the reference can again be to immobility during the Sphere, and not to the condition of the fully separated elements.

[1] (1879), p. 234 n. 2

[2] For a similar criticism of the *dine* on Aristotle's part see note 2, pp. 262–5 below.

ARISTOTLE AS AN HISTORIAN OF PHILOSOPHY

The combined evidence of the *Physics* and of the *De caelo* and the *De generatione et corruptione* is important not only for helping to establish the place of rest and movement in Empedocles. It is crucial to our interpretation not only that the fully separated elements should have been moving and that the Sphere was at rest, but that Aristotle should have known that this was so. For our interpretation in chapter 4 of Aristotle's remark about equal times in Empedocles will rest upon the conclusion of the present argument, that Aristotle knew that the Sphere alone was at rest and that at all other times, including total Strife, the elements were moving (cf. p. 69).

Aristotle's account of the condition of the elements under total Strife has been thought to be mistaken by Bignone,[1] Millerd,[2] and Cherniss.[3] But these scholars suppose that in the *Physics* Aristotle is thinking of two rest periods, and that in fact the fully separated elements were either moving or left undescribed. They are not aware of the implication of the passages we have examined from the *De caelo*, nor do they appreciate that Aristotle's phrases in the *Physics* may as well describe one rest period as two.

It is true that in the *De caelo* the movement of the elements under total Strife has to be seen by implication, even if by fairly obvious implication, and not by open assertion. There is however another way of approaching Aristotle's opinion, if only indirectly. Other evidence, Plutarch and by implication fr. 35 and Eudemus, also shows that the fully separated elements were moving, as we shall go on to argue. If the fully separated elements were in fact moving, it is likely that Aristotle will have known that this was so.

The force of this indirect argument will depend on our attitude to Aristotle as an historian. Any detailed discussion of this question would be beyond the scope of the present work. It may however be worth remarking at this point that I find Aristotle in general a more reliable historian than does Cherniss in his famous work. It is true that Aristotle casts over the theories of his pre-

[1] Pp. 562 n. 3, 592 n. 1 and in his note on fr. 17. 10.
[2] (1908), pp. 53–4.
[3] *ACP*, pp. 175 n. 130 and 205.

decessors a skein of interpretation that fails to do justice to the preoccupations and assumptions of the original. But this does not at once lead to distortion of fact. In some ways the very freedom with which Aristotle criticizes his predecessors in categories that are far removed from their own saves him from the need to interfere excessively with the facts of their theories.

Of course some theories are distorted in Aristotle's account. But factual distortion is limited for the most part to those cases where the original theory is itself less than explicit. Thus the true nature of the *arche* in earlier thinkers is a somewhat delicate question. No doubt Aristotle's fairly diverse categorizations of the *arche* have led to distortion at some points. But it need not follow from this that Aristotle's method will have led him to distort simple questions of fact, for example whether Empedocles' fully separated elements were moving or at rest, or whether their condition was left undescribed. The distinction between movement and rest is in itself a fairly obvious one, and in my opinion Aristotle's method does not habitually lead him to misrepresent these simple questions of fact, however inappropriate or misleading his criticisms of these facts may be from the point of view of a modern historian.

In this instance Cherniss argues that Aristotle has been misled by applying to Empedocles his own theory that between opposed movements rest must intervene. We shall argue that this theory had its influence on Simplicius (p. 29). But it cannot have influenced Aristotle, at least not in the same direct way. For Aristotle, so we have argued, thought that there was only one rest period, with no rest at the extreme of total Strife, as there should be, if Aristotle were interpreting the cycle simply in terms of his own theory (cf. p. 29 below).

At the risk of seeming wise after the event, we may point out that from the start this was not a very likely example of semi-deliberate distortion. Empedocles is not mentioned at all in Aristotle's discussion of opposed movements nor in his discussion of the continuity of movement.[1] Where Aristotle does discuss Empedocles he has no motive for dishonesty. For all Aristotle

[1] E.g. *Phys.* 227b3–231a4, 261a27–265a12; *De caelo* 288a13–289a10. For a possible exception see pp. 53–4 below.

needs in the last book of the *Physics* is an example of alternate movement and rest. Two rest periods in each cycle or one will make no difference to Empedocles' theories from the point of view of the analysis at the opening of the last book of the *Physics*.[1]

THE FRAGMENTS

The fragments offer good, if perhaps not quite conclusive, support for the two parts of Aristotle's evidence: that the Sphere was at rest, and that under total Strife the elements were moving. The immobility of the Sphere is very likely stated in fr. 27. 3–4 and implied in fr. 31. The movement of the fully separated elements is made fairly clear from the opening verses of fr. 35.

It is true that in these fragments there is no direct description of the *alternation* between rest and movement: there is nothing comparable with the description given in fr. 17 and elsewhere of the alternation between Love and Strife, the one and the many. Furthermore, it is unlikely that there was any such description in the parts of the poem that are lost to us. For we have the quotations which two ancient authorities, Aristotle and Eudemus, selected to illustrate this very question. It is unlikely that there will have been anything very much more striking on the subject than what these authors have chosen to give us.

As it is, Aristotle has given us a description of the general alternation between Love and Strife, the one and the many, fr. 26. 8–12. Here the alternation between rest and movement can be only implicit (see pp. 253–4 below). Eudemus, as he is reported by Simplicius, said that 'the time of rest came during the Sphere', and so, by implication, that the separated elements were moving. He gives us quotations to describe the Sphere, fr. 27. 1, its immobility, fr. 27. 3–4, and the beginning of movement at the touch of Strife, fr. 31.[2]

Eudemus does not quote anything from the time of total Strife to show that the Sphere was the only time of rest. For confirmation of this point we have to rely on the implication of the opening

1 This point is repeated on pp. 170 and 253 below. For an *indirect* way in which Aristotle's theory of the continuity of movement may have influenced his understanding of Empedocles at the opening of the last book of the *Physics* see p. 260 below.

2 References pp. 26–31 below.

verses of fr. 35, and on a distinct mention of movement by Plutarch, in what appears to be a paraphrase of verses describing the time of total Strife.

Why did Empedocles not describe the alternation of rest and movement explicitly? Why could Aristotle and Eudemus not find some better quotation, shorter and definitive?

The reason is most likely that what was of primary importance for Aristotle and his school was of only secondary importance for Empedocles. Empedocles probably saw movement and rest as side effects of unity and plurality, harmony and discord, as we shall try to show at the end of this chapter (pp. 38–45). In that case the alternation of movement and rest will probably not have been described *as an alternation.* Instead, the immobility of the Sphere and the movement of the separated elements would have been described separately and more or less incidentally. This is what we find in the fragments discussed below, and is what Plutarch appears to have found.

If movement and rest were described only in this way, it would explain why Aristotle and Eudemus were moved to illustrate their reference to alternate rest and movement with quotations, and why their quotations are not as good as might have been expected. It will also help to explain how Simplicius, with his special preoccupations, was able, so we shall argue, to overlook the precise character of the alternation and suppose that there had been two rest periods.

FRAGMENTS 27. 3–4 AND 31

Fr. 27. 3–4:

οὕτως Ἁρμονίης πυκινῶι κρυφῶι ἐστήρικται
Σφαῖρος κυκλοτερὴς μονίηι περιγηθέι γαίων.[1]

Fr. 31:

πάντα γὰρ ἐξείης πελεμίζετο γυῖα θεοῖο.

[1] κρυφῶι. The accent is given as determined by Herodian, 1. 225. 1–2 Lentz. Herodian is followed by Diels, in his Berlin edition of Simpl. *Phys.* 1183. 32, where the manuscript evidence is divided. Diels changes his mind in *Poetarum philosophorum fragmenta* (Berolini, 1901) (henceforward simply Diels), and in *Fragmente der Vorsokratiker* (henceforward DK).

περιγηθέι. v.l. περιηγέι, see note 6, pp. 276–86 below.

These are the lines quoted by Eudemus, minus fr. 27. 1, to show that 'the period of rest came during the Sphere'. It may be unnecessary to doubt Eudemus' word. But for us these lines, though good, are not in themselves quite conclusive evidence that the Sphere was in fact at rest.

Fr. 31 is only circumstantial. It is an excellent reminder of how movement began, if we are certain that the Sphere has been at rest. In its context this line was probably the source of Aristotle's remark in the *De generatione et corruptione*, quoted above, that the elements arose from the one 'through movement'.

In fr. 27 both 1. ἐστήρικται and 2. μονίηι are at least initially ambiguous.

1. Στηρίζεσθαι normally means that something is 'fixed fast', so that it cannot move. Στηρίζειν was the word that Anaxagoras most likely used to describe his precosmic state of rest.[1]

But it might be argued that, taken on its own, all ἐστήρικται need mean is that the parts of the Sphere are 'bound fast', and so free from movement relative to one another, but that the Sphere revolved as a whole. (It would be difficult to see how the Sphere could be 'fixed fast', if it were divided by internal movements.)

However a secondary piece of evidence, even apart from Aristotle and Eudemus, suggests that the Sphere was not revolving. In an account of the cosmogony recorded by Eusebius, there is the detail: τὴν δὲ ἀρχὴν τῆς κινήσεως συμβῆναι ἀπὸ τοῦ τετυχηκέναι κατά ⟨τι add. Diels⟩ τὸν ἀθροισμὸν ἐπιβρίσαντος τοῦ πυρός.[2] As Zeller recognizes, this is not the first appearance of movement; the separation of the elements has already been described.[3] Eusebius' account refers to the beginning of the alternation of day and night, to the revolution around the earth of two hemispheres, one of fire and the other of air. The fact that rotation was not present from the start of the cosmogony and needed a cause of its own is a fair indication that no rotatory movement had been taken over from the Sphere.[4]

[1] Arist. *Phys.* 205 b 2.

[2] Eus. *Praep. evang.* 1. 8. 10 = Pseudo-Plutarch, *Strom.* 10 (DK 31 A 30).

[3] ZN, p. 981 n. 2.

[4] The cause of rotation, the accumulation of a light element, may seem arbitrary, see e.g. Raven (1957), p. 333 n. 2. It is in fact a reasonably coherent feature of the cosmogony, see note 7, pp. 296–300.

Thus ἐστήρικται of itself suggests immobility. It is perhaps compatible with rotation. But Pseudo-Plutarch implies that the Sphere was not rotating.

2. Μονίη may be derived either from μένειν and mean that the Sphere was at rest, or from μόνος in some sense.

'Rest' is the meaning given by the early editors,[1] and defended by Jaeger.[2] Jaeger argues from Eudemus' use of the fragment to justify the Sphere's immobility. But it is not altogether true to say that 'nothing but the word μονίη could have suggested such an idea'. Even if we take Eudemus' authority to be conclusive, it would still be possible that Eudemus was satisfied with the connotation of rest which we have argued is contained in ἐστήρικται.

'Solitude' is the meaning given by most other scholars.[3] De Vogel and more forcefully Calogero argue that περιηγής, 'surrounding', 'circostante', is meaningful only when applied to solitude, not to rest. But the reading is disputed, and the correct reading is probably περιγηθέι (see pp. 276–86 below).

The derivation from μόνος but with the sense of 'oneness' not of 'solitude' is given by Bignone in explanation of his translation *solitudine*,[4] followed without acknowledgment by Bauer, who translates *Einsseins*.[5] Both argue from Empedocles' own use of μόνος to describe the elements coming together ἓν . . . μόνον εἶναι, fr. 17. 1 and 16. The Sphere is *one* because it *alone* exists. The same kind of 'aloneness' is attributed to Plato's cosmic god in the

[1] Karsten, pp. 546–7, who eventually chooses another reading. Panzerbieter, *Beiträge zur Kritik und Erklärung des Empedokles* (Meiningen, 1844). Mullach, *Fragmenta philosophorum graecorum*, vol. 1 (Didot, Parisiis, 1860). These early editors are followed by Skemp, *The theory of motion in Plato's later dialogues* (Cambridge, 1942), p. 60 n. 1.

[2] *Theology of the early Greek philosophers* (Oxford, 1947), p. 141. Jaeger is followed by Solmsen, *H.S.C.P.* 63 (1958), 277, and *Aristotle's system of the physical world, a comparison with his predecessors* (Cornell University Press, 1960), p. 223 n. 4.

[3] Burnet, *Early Greek philosophy* (4th edn London, 1930) (henceforward *EGP*), p. 210 n. 3. Diels. De Vogel, *Greek philosophy, a collection of texts selected and supplied with some notes and explanations* vol. 1 (Leiden, 1950), p. 56 n. 3. Munding, 'Zur Beweisführung des Empedokles', *Hermes*, 82 (1954), 143. Calogero, 'L'eleatismo di Empedocle', *Studi in onore di L. Castiglioni* (Firenze, 1960), p. 155 n. 34.

[4] Pp. 421 and 423, cf. also his p. 616 n. 2. [5] *Hermes*, 89 (1961), 367–9.

Timaeus, 34B, who is made to be ἕνα μόνον ἔρημον.[1] Bauer argues again from the sense of περιηγής as meaning 'des rings in sich geschlossenen' or 'rings zusammengeschlossenen'.

Uses or possible uses of the word elsewhere than in Empedocles do not decide the point.

1. Tyrtaeus may have used μονίη to mean 'steadfastness' in battle. But the papyrus is defective, and the reading is disputed.[2]

2. Later usage for the solitary life of a bachelor or a monk follows the derivation from μόνος.[3] This usage is adduced by Bauer in support of his interpretation. But these late authors may well be irrelevant for Empedocles.

3. There is in any case a rival interpretation from μένειν. Caelius Aurelianus offers as one explanation of the Greek word μανία the similar sounding μονία, in the sense of persistence: *uel quod perseuerantius corpus teneat et difficile pellatur, et ob id Graeci ueluti moniam dixerunt.*[4]

Several ancient authors, other than Eudemus, quote the verse from Empedocles; but their evidence is indeterminate.

1. A scholiast on Aratus explains the word of the permanence of the heavenly rotation: μονίαν (Maass, μανίαν cod.) δὲ περιηγέα τῆς στροφῆς τὴν μονήν, Anon. 1 *in Aratum* 6, p. 97. 24–9 Maass.

2. Marcus Aurelius quotes the line twice. The first time he appears to be thinking of the sense of μόνος: he speaks of the need to be free from worldly attachments, 8. 41 (the manuscripts have μένει). But the second time mention of imperviousness to ὅσα ἡ ἔξωθεν περιρρέουσα δίνη ἑλίσσει might suggest by contrast the sense of μένειν, 12. 3. Another time, when he is speaking more clearly of the need for the soul to be at rest, Antoninus uses the phrase σφαῖρα ψυχῆς, 11. 12.

3. Proclus' manuscripts have μόνη *in Timaeum* 2. 69. 22 Diehl. In what sense Proclus himself understood the verse it is impossible

[1] For the Empedoclean content of this passage see pp. 144–5 below.

[2] See fr. 1. 15 in the 1st and fr. 1. 54 in the 3rd Teubner edn, 1925 and 1949, by Diehl.

[3] Maximus, περὶ καταρχῶν 71. Joannes Climacus, *Scala paradisi*, *PG* vol. 88, 1112D. [Ephraem], vol. 1, pp. 209B, 264B, 290C, vol. 3, p. 255F Assemani.

[4] *Tardarum sive chronicarum passionum* 1. 5. 145. This occurrence of μονίη is not instanced in previous discussions of the question, and does not appear to be cited in the usual lexica.

to tell. In the immediate context of the fragment he perhaps paraphrases μονίη as μόνωσις: τὸ μὲν γὰρ πᾶν, ὥσπερ ἐστὶν ἕν, οὕτω καὶ σχῆμα ἔχει τῇι ἑαυτοῦ μονώσει προσῆκον, τὸ σφαιρικόν 2. 70. 1–3. But unity, sphericity and rest are for Proclus closely associated, and any one of these ideas could have led to another.[1]

4. Achilles thinks only of shape, and gives no indication of how he understands μονίη (the manuscripts record μούνηι), *Isag.* 6, p. 37. 7–13 Maass.

What solution then can be offered for Empedocles' use of μονίη? Probably the determining factor in Empedocles' use of the word will have been Homer's καμμονίη. Empedocles shows a fondness for adapting Homeric words in this way. Precisely as μονίη is shortened from καμμονίη, so θέλυμνα is probably shortened from προθέλυμνος and τετραθέλυμνος. Similarly Empedocles derives ζωρός from ζωρότερος and ὄψ from the oblique cases in Homer. These and other adaptations from Homer are listed separately (p. 267 below).

The context in Homer shows that the meaning of καμμονίη is 'perseverance', 'steadfastness'.[2] The derivation of καμμονίη therefore will be from μένειν, and not, or at least not primarily, from μόνος, as Schaefer supposes.[3] If μονίη is derived from καμμονίη, the sense therefore will be 'permanence', 'rest'.

However there may also be, as Bignone and Bauer suspect, an echo of the phrase ἓν . . . μόνον εἶναι. For the close association which we shall argue for between unity and rest makes it quite possible that there is a deliberate or semi-deliberate ambiguity. As well as meaning 'permanence' or 'rest', μονίη may be intended to carry connotations of 'onliness' or 'oneness'.[4]

Conclusion

Thus though a certain initial ambiguity hangs around μονίη and ἐστήρικται, closer examination shows that this fragment, and

[1] Cf. 2. 73. 2–26 and 3. 314. 23–315. 16.

[2] *Il.* 22. 257 and 23. 661.

[3] *Ap.* Peyron, *Empedoclis et Parmenidis fragmenta ex codice Taurinensis Bibliothecae restituta et illustrata* etc. (Lipsiae, 1810), p. 51 n. I add the qualification 'or at least not primarily' for the sake of any who may think that μόνος and μένειν have ultimately a common derivation.

[4] A similar suggestion as to the ambiguity of μονίη is made by Traglia, *Studi sulla lingua di Empedocle* (Bari, 1952), pp. 135–6.

fr. 31 therefore, probably support the implication of Aristotle in the *De generatione et corruptione* that the Sphere was at rest. Ἑστήρικται might be compatible with rotation. But the cosmogony recorded by Eusebius suggests that the Sphere was not rotating. Μονίη may mean 'onliness' or 'oneness'. But the primary meaning is probably 'rest', a derivation from Homer's καμμονίη.

FRAGMENT 35. 3–5

The opening verses of fr. 35 show fairly clearly that the fully separated elements were moving:

> ἐπεὶ Νεῖκος μὲν ἐνέρτατον ἵκετο βένθος
> δίνης, ἐν δὲ μέσῃι Φιλότης στροφάλιγγι γένηται,
> ἐν τῆι δὴ τάδε πάντα συνέρχεται ἓν μόνον εἶναι.

Fr. 35 is important for reconstructing several features of the cosmic cycle, and in particular for determining the position of Love at the time of total Strife. However, the lines have been constantly misunderstood, and therefore require detailed interpretation. It will be most convenient to reserve this detailed interpretation until chapter 5 (pp. 106 ff.), and meanwhile to take the results of our analysis for granted. This will involve no circularity, since the analysis in chapter 5 will proceed *de novo*. The introduction here of a necessarily lengthy discussion would considerably complicate the argument of the present chapter.

In chapter 5 it will be argued that the opening verses of fr. 35 describe the transition from the world of increasing Strife to the world of increasing Love. Strife's arrival at the ἐνέρτατον βένθος, so it will be argued, marks the conclusion of its increasing power. *When* Strife has reached the depth of the whirl, *then* things begin to come together. This is the force of ἐπεί . . ., ἐν τῆι δή . . ., even without reading ἔνθ' ἤδη with Bergk (see pp. 112–13). This close time sequence makes it hard to see how there could be an interval of rest. It is fairly clear that the movement of the elements as they first come together in line 5 is taken over without a break from the whirling movement at the end of Strife's world, lines 3–4.

This implication is even more obvious if we refer ἐν τῆι δή to the whirl: ἐν τῆι μέσῃι στροφάλιγγι. This is the more likely sense. The alternative is to understand ἐν τῆι Φιλότητι. The point is

discussed below (pp. 118–19). The whirl where the elements start coming together is the *same* whirl where, a moment or two before, Strife's power has reached its climax. It would be odd if this *same* whirl were meant to have stopped and then started again in the brief interval between συνέρχεται and the action of ἵκετο and γένηται.

The way the argument is introduced by the first two lines adds to the unlikeliness that any significant feature, such as an interval of rest, can be missing here from the opening scenes of Love's world. For Empedocles draws forth the λόγος of increasing Love from its very beginning, in fact from the last moments of increasing Strife. An interval of rest we should expect either to have been the beginning of the present λόγος, or at least to have been mentioned in the transition from increasing Strife to increasing Love.

The previous λόγος to which the opening lines refer could be an account, or the whole account, of increasing Strife. A more specific reference would be to the state of total Strife. Plutarch appears to have paraphrased just such a description of total Strife, and there, as we shall see, the elements are plainly said to be moving. Those or similar lines will presumably have been the source of Aristotle's and Eudemus' view. Here in fr. 35 it is only incidentally that Empedocles lets it be seen that in passing from increasing Strife to increasing Love the elements never cease to move.[1]

SIMPLICIUS

The fragments quoted by Eudemus and fr. 35 have been looked at. The value of Eudemus' testimony in itself and the purpose for which it is recorded by Simplicius now require consideration.

Commenting on Aristotle's first set of remarks in the *Physics* on

[1] A phrase at the end of the fragment, διαλλάξαντα κελεύθους, line 15, has been taken to mean that the elements, when separated by Strife, 'keep their ways apart': Verdenius and Waszink, *Aristotle, On coming-to-be and passing-away, some comments* in the series *Philosophia Antiqua*, vol. 1 (Leiden, 1946), pp. 66–7, approved by Arundel, *C.R.* n.s. 12 (1962), 110. This would probably imply that they were moving. But the interpretation is false. The phrase means 'change their ways', and refers to the transition from domination by increasing Strife to domination by increasing Love. This has been argued elsewhere, *C.R.* n.s. 15 (1965), 3–4. Cf. also pp. 117–18 below.

alternate movement and rest in Empedocles' world Simplicius decides that in fr. 26. 8–12 Aristotle has taken Empedocles to be describing literally a period of rest. Simplicius then *takes it for granted* that Aristotle had in mind two rest periods in each cycle, rest under the Sphere and rest under total Strife, 1125. 15–22:

ἀλλὰ μᾶλλον ῥητέον οὕτως ἀκούειν τὸν Ἀριστοτέλην, ὅτι καθ' ὅσον μὲν εἰς ἄλληλα ἀεὶ μεταβάλλει, ἀίδιος αὐτῶν ἡ μεταβολὴ καὶ ἡ κίνησις (i.e. fr. 26 lines 8–10), καθ' ὅσον δὲ ἐνθένδε ἐκεῖσε μεταβάλλοντα τάδε γίνεται (Simplicius refers to lines 11–12 by way of Aristotle's note, 251 a 4–5), οἷον ἐκ πολλῶν ἓν ἢ ἐξ ἑνὸς πολλά, καὶ μετὰ τὴν μεταβολὴν ἵσταται ποτὲ μὲν εἰς τὸ ἓν εἶναι ποτὲ δὲ εἰς τὸ πολλά, ταύτῃ κατὰ περιόδους ἀεὶ μετὰ τὴν μεταβολὴν ἀποκαθιστάμενα εἰς τὸ τοῦ ἑνὸς ἢ τὸ τῶν πολλῶν εἶδος ἀκίνητά ἐστι κατὰ τὴν περίοδον ἐκείνην, ἕως ἂν πάλιν μεταβάλλειν ἄρξηται.

Simplicius' own view—the correct view—is that, in the lines which Aristotle quotes, Empedocles is not speaking of literal rest at all. 'Immobility' in those lines Simplicius sees more or less rightly as the eternal sameness of change, 1124. 24–6: τὴν δὲ ἀκινησίαν ἔοικεν ὁ Ἐμπεδοκλῆς ἐνορᾶν κατὰ τὴν ἀίδιον ταυτότητα τῆς εἰς ἄλληλα τοῦ ἑνὸς καὶ τῶν πολλῶν μεταβολῆς.

When much later Simplicius comes to Aristotle's second set of remarks on alternate movement and rest in Empedocles he still has in mind that for Aristotle there were two rest periods in Empedocles' cycle, 252 a 5–32 = 1183. 21–1186. 35. However, now he introduces a divergent view. Eudemus said there was only one rest period, 1183. 21–1184. 4:

πλάσματι ἐοικέναι εἰπὼν (Aristotle) τὸ λέγειν, ὅτι ὁτὲ μὲν ἦν κίνησις, ὁτὲ δὲ οὔ. . .τοῦτο δὲ ἔοικεν Ἐμπεδοκλῆς ἂν εἰπεῖν, ὅτε λέγει ὅτι τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος ἐξ ἀνάγκης ὑπάρχει τοῖς πράγμασιν, εἰ δὲ καὶ τοῦτο, καὶ τὸ ἠρεμεῖν ἐν τῶι μεταξὺ χρόνωι· τῶν γὰρ ἐναντίων κινήσεων ἠρεμία μεταξύ ἐστιν. Εὔδημος δὲ τὴν ἀκινησίαν ἐν τῇι τῆς φιλίας ἐπικρατείαι κατὰ τὸν Σφαῖρον ἐκδέχεται, ἐπειδὰν ἅπαντα συγκριθῆι,

ἔνθ' οὔτ' ἠελίοιο διείδεται ὠκέα γυῖα,

ἀλλ', ὥς φησιν, fr. 27. 3–4· ἀρξαμένου δὲ πάλιν τοῦ νείκους ἐπικρατεῖν τότε πάλιν κίνησις ἐν τῶι Σφαίρωι γίνεται, fr. 31.[1]

[1] Frr. 27. 3–4 and 31 are quoted above, p. 20.

Simplicius makes it clear enough that here as in the earlier passage he speaks of two rest periods only because he supposes that that is what Aristotle has in mind. Eudemus' opinion is introduced as a contrast to this idea, and then left to stand without further comment.

Why does Simplicius not try to decide the question by reference to the poem, or to so much of it as he had access to?[1] Partly no doubt because the difference between one rest period and two is irrelevant to Aristotle's present arguments. But a deeper reason for Simplicius' indifference at this point is that the whole idea of an alternation between the Sphere and the world of plurality is not something that Simplicius considers to be really part of Empedocles' philosophy at all.

Simplicius sees the Sphere as the intelligible world, and therefore as eternal and unchanging.[2] Within this sensible, sublunary world Love and Strife are permanently at war, rather as in Heraclitus' world. The triumph of one or the other is only local and temporary.[3] Simplicius allows that Empedocles spoke of an alternate rule of Love and Strife metaphorically[4] in an effort to make clearer the nature of the world.[5] In this sense, and in this sense only, Empedocles will have spoken of movement as stopping and starting.[6] But Empedocles did not seriously believe that this world arose from the Sphere; nor that there would be a time when Strife was in complete control of the world,[7] and the elements were fully separated.[8]

Simplicius believes that Aristotle is aware of Empedocles' real meaning. Aristotle knows that Empedocles did not really intend there to be alternate worlds of Love and Strife.[9] For in general Aristotle is well aware of the distinction between the real and the mythical sense of the writings of Plato and the early philosophers. If he appears to accept the mythical sense, it is only to combat those dull minds who take literally what was meant to be figurative.[10]

[1] For Simplicius' knowledge of the poem see pp. 150–1 below.
[2] *Phys.* 31. 18–31, 160. 22–161. 13; *De caelo* 140. 25–141. 9, 294. 10–13, 590. 19–591. 6.
[3] *Phys.* 34. 4–12, 1123. 25–1124. 18.
[4] *De caelo* 530. 12–15.
[5] *De caelo* 530. 24–6; *Phys.* 1186. 30–5.
[6] *Phys.* 1121. 17–21.
[7] *De caelo* 528. 29–32.
[8] *De caelo* 530. 22–4.
[9] *De caelo* 141. 9–11.
[10] *De caelo* 139. 27–140. 25, 296. 6–30, 530. 16–17.

As a result of this way of looking at things the question whether the fully separated elements would have been said to be moving or at rest is plainly of no real significance for Simplicius. For the condition of total separation, along with the whole idea of an alternation between rest and movement, is part of Empedocles' myth. Thus, in the passage quoted, Simplicius is interested enough to note without further comment Eudemus' view that only the Sphere was at rest. Otherwise he is content to let himself be guided by what he thinks Aristotle is saying, without himself having recourse to the poem.

But to let oneself be guided by Aristotle on this point was a dangerous procedure. For, as we have noted earlier, Aristotle's remarks that the elements are at rest 'in the between time(s)' are ambiguous. They may refer to one rest period or to two.

It is easy enough to see why Simplicius selects the meaning which he does, the *wrong* meaning as it happens. On Aristotle's principles between opposed movements rest must intervene.[1] Becoming many from one and becoming one from many are opposed movements *par excellence*.[2] At both termini then, complete unity and complete separation, rest must intervene. Simplicius lets it be seen quite plainly that this is the line of reasoning which has led him to think of two rest periods, in the second of the passages quoted above: . . .καὶ τὸ ἠρεμεῖν ἐν τῶι μεταξὺ χρόνωι· τῶν γὰρ ἐναντίων κινήσεων ἠρεμία μεταξύ ἐστιν.

Thus Simplicius' talk of two rest periods is governed entirely by his *false* understanding of Aristotle. It does not mean that he has given the condition of the fully separated elements any personal first-hand consideration in the light of his own knowledge of the poem.[3]

Simplicius has perhaps also been influenced by Aristotle's other commentators into thinking of two rest periods.

1. Alexander also thought that Aristotle had misunderstood ἀκίνητοι, *ap.* Simpl. *Phys.* 1125. 3–14. Aristotle's misunderstand-

[1] *Phys.* 261a31–b26. [2] *Phys.* 229a7–b22.

[3] Further evidence that Simplicius does not seriously intend to attribute two rest periods to Empedocles is to be seen in his assertion that no one made his *archai* 'many and unmoving', *Phys.* 22. 17, see p. 40 below.

Millerd (1908), p. 54 n. 1, has somehow misunderstood Simplicius' interpretation of Aristotle as meaning that the Sphere alone was at rest.

ing, said Alexander, made the elements immobile, καθ' ἑκάστην περίοδον καὶ καθ' ἑκάστην τελειότητα, ἣν κύκλον λέγει. It is impossible to tell from this whether there is one rest period or two in mind. 'Period' and 'completeness' are both non-committal. They might refer to each whole cycle, which is what κύκλος perhaps suggests.[1] But they could perhaps instead refer to the completeness of total unity and total separation, as in Simplicius' words, quoted above, τὸ τοῦ ἑνὸς ἢ τὸ τῶν πολλῶν εἶδος.

2. Themistius is also non-committal. But Simplicius quotes him as in agreement with his own view.[2]

3. Philoponus clearly thinks of two rest periods. His knowledge of Empedocles is in general derived from Aristotle.[3] In this instance he appears to be copying Alexander—he uses the same phrase, καθ' ἑκάστην τελειότητα, *Excerpta Paris.* 823. 10–14: καθό, φησιν, οἱ δύο κόσμοι ἀεὶ ἀλλάσσοντα καὶ διαδεχόμενα ἄλληλα (*sic*) οὐδαμῶς λήγει, ταύτηι οἱ κόσμοι οὗτοι ἀκίνητοι καὶ ἀίδιοί εἰσι. 'κατὰ κύκλον', τουτέστι τῆι περιόδωι. (This Philoponus rightly gives as the correct explanation.) ὁ δὲ Ἀριστοτέλης οὕτως φησί· καθ' ἑκάστην τελειότητα τοῦ σφαίρου καὶ τοῦ κόσμου ἠρεμοῦσι, κινοῦνται δὲ ἐν τῶι μεταξύ.

EUDEMUS

Since Simplicius is not to be trusted in his talk of two rest periods, we are free to look at the opinion he has reported from Eudemus in its own light.

Clearly, Eudemus was not out to contradict Aristotle. This is what some modern scholars have supposed.[4] This impression is due solely to Simplicius. Eudemus is opposed not to Aristotle, but to Simplicius' interpretation of Aristotle, and Simplicius' interpretation of Aristotle is wrong.

It is clear that in fact Eudemus was in agreement with what we

[1] For a further indication that Alexander did not think of the fully separated elements as at rest, see pp. 262–3 below.

[2] Them. *Phys.* 209. 17–22. Simpl. *Phys.* 1125. 22–4.

[3] Cf. pp. 203 and 207–9 below.

[4] Karsten, p. 367; Bignone, p. 592 n. 1; Solmsen (1960), p. 223 n. 4. Wehrli supposes that both Aristotle and Eudemus believed in two periods of rest in each cycle, *Die Schule des Aristoteles, Texte und Kommentar* (Basel, 1955), Heft 8, *Eudemos von Rhodos*, note on fr. 110.

have seen to be the meaning of Aristotle. For the point of Simplicius' reference to Eudemus is fairly obviously that Eudemus made it plain that he took the Sphere to be the only period of rest in Empedocles' cycle. He must have thought of the fully separated elements as moving.

Is Eudemus' testimony at least materially independent of Aristotle? Yes. Eudemus has taken the trouble to look up some fresh quotations to illustrate Aristotle's point. At other times too he refers to the Presocratics more extensively than does Aristotle.[1] Access to the works of the later Presocratics would not be surprising in a scholar of his day.

But did Eudemus go to the poem with Aristotle's interpretation determining what he found there? This is unlikely: for, as we have seen, Aristotle does not make it clear at this point precisely what interpretation of Empedocles he does have. Conceivably Eudemus was satisfied as soon as he had found one period of rest in Empedocles' cycle. More likely, his silence over the separated elements means only that their condition was sufficiently obvious to someone who read the poems without the preconceptions of such as Simplicius.

Simplicius then has misunderstood Aristotle, and consequently misinterprets Empedocles, but for reasons we can explain. Eudemus agrees with Aristotle, and his evidence is fairly certainly independent.

PLUTARCH

Plutarch has an extended description of the condition of the elements in Empedocles' world at the time of total Strife, *De fac. in orbe lun.* 926D–927A. It is introduced as a warning to those who would too rigorously defend the Aristotelian and Stoic doctrine of separate natural places for the elements and so deny that the moon can be made of earth. In the course of this description the elements are clearly said to be moving.

ὥσθ' ὅρα καὶ σκόπει, δαιμόνιε, μὴ μεθιστὰς καὶ ἀπάγων ἕκαστον, ὅπου πέφυκεν εἶναι, διάλυσίν τινα κόσμου φιλοσοφῇς καὶ τὸ νεῖκος ἐπάγῃς τὸ 'Εμπεδοκλέους τοῖς πράγμασι, μᾶλλον δὲ τοὺς παλαιοὺς κινῇς Τιτᾶνας ἐπὶ τὴν φύσιν καὶ Γίγαντας καὶ τὴν μυθικὴν ἐκείνην καὶ

[1] E.g. frr. 111, 54a Wehrli.

φοβερὰν ἀκοσμίαν καὶ πλημμέλειαν ἐπιδεῖν ποθῆις, χωρὶς τὸ βαρὺ πᾶν καὶ χωρὶς ⟨θεὶς πᾶν Cherniss, Loeb edition 1957⟩ τὸ κοῦφον

> 'ἔνθ' οὔτ' ἠελίοιο δεδίσκεται ἀγλαὸν εἶδος
> οὐδὲ μὲν οὐδ' αἴης λάσιον γένος οὐδὲ θάλασσα',[1]

ὡς φησιν Ἐμπεδοκλῆς, οὐ γῆ θερμότητος μετεῖχεν, οὐχ ὕδωρ πνεύματος, οὐκ ἄνω τι τῶν βαρέων, οὐ κάτω τι τῶν κούφων· ἀλλ' ἄκρατοι καὶ ἄστοργοι καὶ μονάδες αἱ τῶν ὅλων ἀρχαί, μὴ προσιέμεναι σύγκρισιν ἑτέρου πρὸς ἕτερον μηδὲ κοινωνίαν, ἀλλὰ φεύγουσαι καὶ ἀποστρεφόμεναι καὶ φερόμεναι φορὰς ἰδίας καὶ αὐθάδεις οὕτως εἶχον ὡς ἔχει πᾶν οὗ θεὸς ἄπεστι κατὰ Πλάτωνα (*Tim.* 53 B 2–5, cf. *Pol.* 272 D 5–273 A 4), τουτέστιν, ὡς ἔχει τὰ σώματα νοῦ καὶ ψυχῆς ἀπολιπούσης, ἄχρις οὗ τὸ ἱμερτὸν ἦκεν ἐπὶ τὴν φύσιν ἐκ προνοίας, Φιλότητος ἐγγενομένης καὶ Ἀφροδίτης καὶ Ἔρωτος, ὡς Ἐμπεδοκλῆς λέγει καὶ Παρμενίδης (cf. frr. 12 and 13) καὶ Ἡσίοδος (*Theog.* 120–2), ἵνα καὶ τόπους ἀμείψαντα καὶ δυνάμεις ἀπ' ἀλλήλων μεταλαβόντα καὶ τὰ μὲν κινήσεως τὰ δὲ μονῆς ἀνάγκαις ἐνδεθέντα καὶ καταβιασθέντα πρὸς τὸ βέλτιον, ἐξ οὗ πέφυκεν, ἐνδοῦναι καὶ μεταστῆναι (lac. 7 lit. E, 8–9 B) ἁρμονίαν καὶ κοινωνίαν ἀπεργάσηται τοῦ παντός.

This passage has been applied by Gilbert to the first separation of the elements after the Sphere.[2] But at that time the elements are *partially* separated *after* a period of cosmic harmony. The elements which Plutarch describes are *fully* separated – that is the point of the quotation – *before* the intervention of Philotes and Aphrodite. Plutarch therefore must be describing the condition of the elements at the time of total Strife, as was seen by Panzerbieter,[3] and by Brandis.[4] Gilbert has in fact been influenced by Tannery's false view that there is only one world such as our own from Sphere to Sphere and that total Strife is only a preliminary sorting out of the elements.[5]

Plutarch's passage is important therefore as our fullest record of the description which Empedocles gave of total Strife. As such it will be called into use again (pp. 147–54). It is also something of a test case of Plutarch's reliability. Plutarch devoted a major

[1] On the reading δεδίσκεται see pp. 149–54 below.
[2] *Griechische Religionsphilosophie* (Leipzig, 1911), p. 210 n. 1.
[3] P. 2 n. 2.
[4] *Handbuch der Geschichte der griechisch-römischen Philosophie* (Berlin, 1835–60), Theil 1, p. 205 n. *q*.
[5] For Tannery's view see pp. 158 ff. below.

work to Empedocles, which is cited once by Hippolytus,[1] and which is listed in the so-called Lamprias *Catalogue* of Plutarch's works, number 43, εἰς Ἐμπεδοκλέα βιβλία ι'.[2] Plutarch thus stands with Aristotle and Simplicius as someone who both had read Empedocles and quotes him frequently. Any sign of bias or inaccuracy would therefore be crucial. As it is, two objections have been brought against the authenticity of Plutarch's present account. The one concerns movement, the other weight. These objections are not of much significance in themselves, but the importance of the passage demands that they be given some attention.

1. *Movement.* Cherniss claims that the mention of movement is due to confusion with the *Timaeus*, to which Plutarch refers

[1] *Ref.* 5. 20. 6: περὶ ὧν Πλούταρχος ποιεῖται λόγους ἐν ταῖς πρὸς Ἐμπεδοκλέα δέκα βίβλοις. For the possible use elsewhere by Hippolytus of Plutarch's work, see p. 210 n. 3 below.

[2] The entry in the so-called Lamprias *Catalogue* is given as above by Max Treu, *Der sogenannte Lampriascatalog der Plutarchschriften* (Waldenburg in Schlesien, 1873), *ad loc.* Treu's version is a conflation of two manuscript readings, reported as:

A and B. Εἰς Ἐμπεδοκλέα περὶ τῆς ε' οὐσίας βιβλία ε'.

C, D and E. Εἰς Ἐμπεδοκλέους βιβλία δέκα (ι' C) περὶ τῆς ε' οὐσίας βιβλία ε'.

Nagy favours taking the reading in C, D and E as a single title, 'Di alcuni scritti attribuiti ad Empedocle', *Rendiconti della Reale Accademia dei Lincei, Classe di scienze morali, storiche e filologiche*, serie 5, vol. 10 (1901), pp. 335–6. He relies in part on a reference in a fifth-century Hebrew work to 'Empedocles on the five substances', which should perhaps be emended to 'Empedocles on the fifth substance', so S. Munk, *Mélanges de philosophie juive et arabe* (Paris, 1859), p. 3 n. 1. But Nagy does not appear aware of the citation in Hippolytus, which conclusively supports Treu's version. Nagy's attempt, pp. 336–43, to attach the doctrine of a fifth element to Empedocles is wholly implausible.

After writing this, I was glad to hear from Mr Sandbach that there are in fact three independent manuscripts, and that they all have Εἰς Ἐμπεδοκλέα βιβλία ι'.

Fairbanks, in an article 'On Plutarch's quotations from the early Greek philosophers', *T.A.P.A.* 28 (1897), 75–87, rightly concludes, p. 84: 'There is no doubt that he (Plutarch) was acquainted with the writings of Empedokles, and that a considerable number of the quotations from Empedokles were made at first hand.' But in his discussion Fairbanks seems strangely ignorant of the existence of Plutarch's work on Empedocles. The only earlier discussion of any note is that by Tischer, *Quaestionum Empedoclearum specimen*, in *Programm. . . bei dem Gymnasium zu Luckau* (1843), pp. 10–11.

immediately afterwards.[1] But this comparison between Empedocles' victory of Strife and the random movements of Plato's receptacle is what we have already found implicit in Aristotle, in the earlier passage of the *De caelo* (pp. 12–14). Cherniss would probably not have made this point unless he had already decided, following Zeller, as noted above (p. 5), that Empedocles did not specify whether the fully separated elements were moving or at rest. Cherniss' objection, one suspects, is for the sake of his own consistency.

2. *Weight.* Aristotle in the *De caelo*, 309a19–21, says that some of those who deny the existence of void gave no explanation of lightness and heaviness, for example Anaxagoras and Empedocles. Aristotle's remark has been said to be incompatible with Plutarch's inclusion in the passage quoted of heaviness and lightness as properties of the elements. This is the opinion of Burnet,[2] and apparently of Diels.[3] The suggestion comes initially from Sturz.[4] Some arguments have already been brought against Burnet by Bignone.[5] But the idea that Empedocles' elements 'had no weight' still crops up in Robin.[6]

Briefly, Aristotle says only that Empedocles and Anaxagoras did not *define* heavy and light, οὐδὲν διώρισαν. At the beginning of the discussion he makes the obvious point that everyone has used heavy and light without defining their nature, 308a3–4: πάντες μὲν χρῶνται ταῖς δυνάμεσιν αὐτῶν (i.e. heavy and light), οὐ μὴν διωρίκασί γε, πλὴν ὀλίγων.[7]

This is essentially what Theophrastus tells us again in his *De sensibus*, 59–60:

περὶ δὲ τῶν αἰσθητῶν, τίς ἡ φύσις καὶ ποῖον ἕκαστόν ἐστιν, οἱ μὲν ἄλλοι παραλείπουσιν. τῶν μὲν γὰρ ὑπὸ τὴν ἁφὴν περὶ βαρέος καὶ κούφου καὶ θερμοῦ καὶ ψυχροῦ λέγουσιν, οἷον ὅτι τὸ μὲν μανὸν καὶ

[1] Loeb edition of the *De facie* (1957), *ad loc.*
[2] *Early Greek philosophy* (1st edn 1892), p. 224 n. 56, not in later editions.
[3] P. 119.
[4] Pp. 583–4.
[5] Pp. 526–9, repeated with additional detail in *B.F.C.* 24 (1918), 97–100.
[6] (1923), p. 122.
[7] In the *De generatione et corruptione* Aristotle does say that in fr. 21 Empedocles specifies, διορίζει, the properties of the elements, 314b22. But it is not incompatible for Aristotle to say that Empedocles has not *defined* the nature of the properties which he *specifies*.

λεπτὸν θερμόν, τὸ δὲ πυκνὸν καὶ παχὺ ψυχρόν, ὥσπερ Ἀναξαγόρας διαιρεῖ τὸν ἀέρα καὶ τὸν αἰθέρα· σχεδὸν δὲ καὶ τὸ βαρὺ καὶ τὸ κοῦφον τοῖς αὐτοῖς καὶ ἔτι ταῖς ἄνω καὶ κάτω φοραῖς, καὶ πρὸς τούτοις περί τε φωνῆς ὅτι κίνησις τοῦ ἀέρος, καὶ περὶ ὀσμῆς ὅτι ἀπορροή τις. Ἐμπεδοκλῆς δὲ καὶ περὶ τῶν χρωμάτων καὶ ὅτι τὸ μὲν λευκὸν τοῦ πυρός, τὸ δὲ μέλαν τοῦ ὕδατος...Δημόκριτος δὲ καὶ Πλάτων ἐπὶ πλεῖστόν εἰσιν ἠμμένοι, καθ' ἕκαστον γὰρ ἀφορίζουσι etc.

Here we see just what Aristotle meant by οὐδὲν διώρισαν. The 'few' who did attempt to define heavy and light, for Aristotle, 308b3–309a18, as for Theophrastus, are the Atomists and Plato.

Simplicius specifically attributes the opposites heavy and light to Empedocles' elements, although the context makes their inclusion a pretty casual matter, *Phys.* 155. 1–20.

More important, Aristotle himself attributes the use of weight to Empedocles when, discussing ἀλλοίωσις, he says that Empedocles made earth 'heavy and hard', βαρὺ καὶ σκληρόν, *De gen. et corr.* 315a11. He is evidently paraphrasing a verse from the same context from which he has quoted earlier, ἐκ δ' αἴης προρέουσι θέλυμνά τε καὶ στερεωπά.[1]

All therefore that Aristotle means in the passage which Burnet has quoted is that before the Atomists and Plato weight was taken for granted and seen as no different in kind from any other sensible quality.

Plutarch is no less alive than Aristotle and Theophrastus to this peculiarity of ancient thought. The ancients, he concludes in one place, *De prim. frig.* 955B–C, did not distinguish the terrestrial and heavenly elements with reference primarily to place, as if they were holding up an imaginary pair of scales, a reference to *Timaeus* 63B–C. Their interest, Plutarch rightly says, was in whether things were θερμὰ καὶ λαμπρὰ καὶ ταχέα καὶ κοῦφα or σκοτεινὰ καὶ ψυχρὰ καὶ βραδέα. That is, heaviness and lightness were seen as basically no different from other sensible qualities—essentially Aristotle's point.

What makes Plutarch's evidence still more convincing is that twice elsewhere he quotes from Empedocles a situation where light things were not all up, nor heavy things all down. In tortoises and

[1] Fr. 21. 6, cf. 314b20–3. For the reading θέλυμνα see note 3, pp. 266–7 below.

the like 'you will see earth dwelling on top of flesh'.[1] Plutarch is no doubt right to imply, as he appears to do in the first passage, that what his friends would call the unnatural position of earth is due to Love. For it was Love's function to move earth upwards,[2] and Love was especially active in the formation of animals and their parts.[3]

Thus Plutarch appears to have been reasonably familiar with the behaviour of the elements in Empedocles' system. There is nothing at all suspicious in his calling them heavy and light. The most that will have happened is that Plutarch, like Aristotle, will have used βαρύς and κοῦφος to paraphrase any less familiar terms he may have found, e.g. θέλυμνα.

A small parallel for Plutarch's description of the separated elements is perhaps to be found in Simplicius, *De caelo* 530. 17–20:

ὅτε τὰ στοιχεῖα διειστήκει χωρὶς ὑπὸ τοῦ νείκους, ἐπειδὴ τότε ἀμίκτων ὄντων οὐκ ἦν σύνταξις τῶι οὐρανῶι πρὸς τὴν γῆν, μᾶλλον δὲ ἀμίκτων ὄντων τῶν στοιχείων οὔπω οὐδὲ ὁ οὐρανὸς ἦν κατὰ τὴν τοιαύτην ὑπόθεσιν. . .

This Simplicius introduces not as giving Empedocles' real meaning, but as a consequence of his mythical approach. From the way he does so, it is impossible to tell whether he is avowedly improvising, or whether the reader is to suppose that Empedocles' mythical approach did in fact lead him to give such a description of the separated elements. Μᾶλλον δέ perhaps marks the transition from fact to invention. In the preceding phrase we may therefore have a brief reminiscence of the lines which Plutarch has paraphrased.

Plutarch then may be ranked with Aristotle and Eudemus against Simplicius as having held that the fully separated elements were moving.

PSEUDO-ARISTOTLE 'DE MELISSO XENOPHANE GORGIA'

In *De MXG* 976b22–4 there is the statement that movement in Empedocles' world was constant: ὁμοίως δὲ καὶ ὁ Ἐμπεδοκλῆς

[1] Fr. 76, quoted *Quaest. conv.* 618B and *De fac. in orbe lun.* 927F.
[2] Arist. *De gen. et corr.* 333b26–33. [3] See pp. 200–3 below.

κινεῖσθαι μὲν ἀεί φησι συγκρινόμενα ⟨καὶ διακρινόμενα⟩ τὸν ἅπαντα ἐνδελεχῶς χρόνον.[1]

This evidence is valueless.

In the first place the evidence is ambiguous. It probably means that movement was continuous. But it could mean that movement in Empedocles' world goes on 'for ever' in a sense that would not exclude there being intervals of rest. For ἐνδελεχῶς usually means strictly continuous. For example, in [Arist.] *De mundo* κινουμένου, καθάπερ εἶπον, ἐνδελεχῶς, 391 b 20, looks back to κινούμενος κίνησιν ἀίδιον, b 17. But it seems that ἐνδελεχῶς can be used in a looser sense. Xenophon, *Cynegeticus* 7. 2, warns against over-exerting pregnant bitches, μὴ ἐξάγειν ἐπὶ κυνηγέσιον ἐνδελεχῶς, ἀλλὰ διαλείπειν. Presumably the danger would be of continual, not strictly continuous, hunting.

If the author of *De MXG* does mean that movement in Empedocles' world is continuous, there are two possible sources for his confusion.

1. Theophrastus writes: δεῖ γὰρ διατελεῖν ἐναλλὰξ κινούμενα τὰ στοιχεῖα, ποτὲ μὲν ὑπὸ τῆς φιλίας συγκρινόμενα, ποτὲ δὲ ὑπὸ τοῦ νείκους διακρινόμενα.[2] This need not mean strictly continuous movement, as McDiarmid supposes.[3] But Theophrastus' words, or any similar formula, could easily have been taken in that sense.[4]

2. The author may intend to paraphrase fr. 17. 6, a verse which is repeated in the more general parts of the poem, and so could have become easily known,

καὶ ταῦτ' ἀλλάσσοντα διαμπερὲς οὐδαμὰ λήγει.[5]

This verse is quoted by Diogenes Laertius, 8. 76, with the comment, ὡς ἂν ἀιδίου τῆς τοιαύτης διακοσμήσεως οὔσης. It may be true, as Aristotle says, that Empedocles' world is eternal in that it changes only in its διαθέσεις, *De caelo* 280 a 11–23. But the present condition of the world is hardly the same διακόσμησις as

[1] συγκρινόμενα L. συγκοινόμενα R. ⟨καὶ διακρινόμενα⟩ addidi: cf. n. 4 below.

[2] *Ap.* Simpl. *Phys.* 25. 24–6 = *Dox.* 478. 4–6.

[3] 'Theophrastus on the Presocratic causes', *H.S.C.P.* 61 (1953), 106 and 109.

[4] The opinion in *De MXG* may possibly be derived from this text of Theophrastus. If so, this would support the restoration ⟨καὶ διακρινόμενα⟩.

[5] This verse is repeated at frr. 17. 12 and 26. 11. For the position and context of fr. 26, as a recapitulation of the teaching of the earlier part of the poem, see pp. 210–11 below.

the Sphere or total Strife. Once the idea of an eternal world had become associated with Empedocles, and with these verses in particular, it would be easy to suppose that movement in that world was likewise eternal and continuous.[1]

REST AND UNITY, MOVEMENT AND PLURALITY IN THE FIFTH CENTURY

In his theory of reversed world periods—increasing Love repeating the events of increasing Strife in the reverse order—Empedocles was entirely original. If Kirk is right to deny ἐκπύρωσις to Heraclitus, and successive worlds to Anaximander, then Empedocles will also have introduced the whole idea of successive worlds and an alternation between the one and the many.[2] But in his use of rest and movement within this scheme Empedocles was following the ideas of his time. For in the fifth century rest was regularly associated with unity and movement with plurality.

PLATO AND ARISTOTLE

This habit of associating rest and unity, movement and plurality can be seen even in Plato. In the *Sophist*, 249–50, it is only with a struggle that Plato modifies his earlier simple opposition of a changeless unity and a changing plurality. The old ways of thinking return and are incorporated into the *Timaeus*, 57E:

[1] There is perhaps an implication of continuous movement in Alexander, *ap.* Philop. *De gen. et corr.* 268. 8–13. But, such as it is, it is obviously based on *a priori* grounds. Aristotle asks for a first mover, a cause of alternation, *De gen. et corr.* 334a 5–9, quoted and discussed below, pp. 172–5. Alexander supposes that Aristotle might mean literally a time when the elements are moving but are not moved by Love or Strife.

For the influence which the notion of continuous movement in Empedocles has exerted on modern interpretations of an instantaneous Sphere, see p. 55 n. 4 below.

We may note that Aetius 1. 7. 28 is wrongly used as evidence for the Sphere's immobility by Pfligersdorffer, *Studien zu Poseidonios*, in *Sitzungsberichte der Österreichischen Akademie der Wissenschaften, Philosophisch-historische Klasse*, Band 232, Abhandlung 5 (1959), 110. The relevant phrase is nothing more than Diels' emendation of a lacuna 'beispielsweise', *Rh.M.* n.F. 36 (1881), 345–6, cf. DK 1. 289. 8.

[2] Kirk, *Heraclitus, the cosmic fragments* (Cambridge, 1954), pp. 335–8; on Anaximander, *C.Q.* n.s. 5 (1955), 28–32. For Pythagorean repeated worlds cf. p. 126 n. 5 below.

οὕτω δὴ στάσιν μὲν ἐν ὁμαλότητι, κίνησιν δὲ εἰς ἀνωμαλότητα ἀεὶ τιθῶμεν. The idea is repeated several times.[1]

Plato automatically applies to earlier thinkers one-half of this rule, the association of rest and likeness, when he writes in the *Laws*, 895 A: εἰ σταίη πως τὰ πάντα ὁμοῦ γενόμενα, καθάπερ οἱ πλεῖστοι τῶν τοιούτων τολμῶσι λέγειν . . . The complementary association of plurality and movement can be seen, admittedly in a very general form, in the *Theaetetus*, 152 E, where nearly all the ancient thinkers, with Homer at their head, and specifically including Empedocles, are said to have made the many things of this world the children of movement: πάντα εἴρηκεν ἔκγονα ῥοῆς τε καὶ κινήσεως.

A striking passage occurs in the *Phaedrus*, 245 D 6–E 2:

οὕτω δὴ κινήσεως μὲν ἀρχὴ τὸ αὐτὸ αὑτὸ κινοῦν. τοῦτο δὲ οὔτ' ἀπόλλυσθαι οὔτε γίγνεσθαι δυνατόν, ἢ πάντα τε οὐρανὸν πᾶσάν τε γῆν εἰς ἓν συμπεσοῦσαν στῆναι καὶ μήποτε αὖθις ἔχειν ὅθεν κινηθέντα γενήσεται.[2]

It is likely enough that we have here a reminiscence of Empedocles' world *coming together* (εἰς ἓν συμπεσοῦσαν) into the *immobility* (στῆναι) of the Sphere. The same idea, with the same association of coming together and cessation of life, appears in the *Phaedo*, in the cyclic corollary to the argument from *antapodosis*, 72 A 11–D 5.

Aristotle in his own system has thought out the nature of rest and movement afresh. But he recognizes the old pairing of rest and unity, movement and plurality, as part of a familiar grouping of the most important pairs of opposites, *Met.* 1004 b 27–9: πάντα ἀνάγεται εἰς τὸ ὂν καὶ τὸ μὴ ὄν, καὶ εἰς ἓν καὶ πλῆθος, οἷον στάσις τοῦ ἑνός, κίνησις δὲ τοῦ πλήθους. (Cf. *Phys.* 201 b 16–21.)

In the same way as with Plato, the rule makes itself felt in Aristotle's generalizations about Presocratic thought, for example in the later of the two passages quoted above (p. 10) from the *De caelo*, 301 a 12–14: ἐξ ἀκινήτων γὰρ ἄρχεται κοσμοποιεῖν (Anaxa-

[1] 52 E, 57 C, 58 D–E, 62 B 1–2.

[2] γῆν εἰς ἓν Philop. *De aet. mundi* 267. 24 and 268. 4 Rabe: Burnet, *OT* [2nd edn], 1910. γῆν t in marg. γένεσιν BT; *Oxy. pap.* vol. 7, p. 132 Hunt; Hermias, p. 117. 24 Couvreur; Syrianus, *Met.* 118. 7; Stob. *Ecl.* 1. 49. 11: Burnet, *OT* [1st edn], 1901; Robin, Budé 1933. *omnisque natura*, Cic. *Tusc. disp.* 1. 23. 54.

goras). πειρῶνται δὲ καὶ οἱ ἄλλοι συγκρίνοντές πως πάλιν κινεῖν καὶ διακρίνειν.

Especially significant is a passage from the beginning of the *Physics*, 184b15–22, where Aristotle classifies the principles of the Presocratics according to whether they were one or many, moving or at rest. Nothing is said here of many things being at rest. Aristotle's silence may well be a sign that plurality and rest were generally thought of as incompatible, and in particular that Empedocles' fully separated elements were moving. For the obvious reason for Aristotle's omission is given by Simplicius, 22. 17: διὰ τὸ μηδὲ γεγονέναι δόξαν πολλὰς καὶ ἀκινήτους τὰς ἀρχὰς λέγουσαν. This Simplicius repeats, 42. 8–10: καὶ γὰρ καὶ ἀδύνατον ἐκ πλειόνων ἀρχῶν μὴ κινουμένων γίνεσθαί τι (κοινωνεῖν γὰρ ἀλλήλαις δέονται), καὶ διὰ τὸ προφανῶς ἀδύνατον οὐδὲ ἔσχε προστάτην ἡ δόξα. Simplicius' explicit and repeated endorsement of the implication of Aristotle's analysis confirms our conclusion that his talk of two rest periods in Empedocles was superficial and unthinking (pp. 26–30 above).

Almost as revealing is the explanation which Simplicius quotes from Alexander for Aristotle's silence here. If Aristotle is able to refute the possibility of a single *arche* being at rest, then *a fortiori* there could not be plural *archai* at rest: οἰκειότερον μὲν γὰρ τῇι μιᾶι τὸ μὴ κινεῖσθαι, εἰ οἷόν τε ἦν, *Phys.* 42. 16–26.

THE MILESIANS

However in this same passage of Aristotle examples are given of a moving unity: water for Thales and air for Anaximenes. To these Simplicius adds Anaximander's *apeiron*, *Phys.* 24. 13. It seems as if our law will not apply therefore, at least not in one of its parts, to the Milesians.

But the moving unities of the Milesians raise a problem in themselves.

Theophrastus must have written that the Milesians believed in 'eternal movement'.[1] Theophrastus' report has been rejected by

[1] Simpl. *Phys.* 1121. 5–9 (DK 12A17) and 12–17 (DK 13A11). Aet. 4. 2. 1 (DK 11A22a). Cicero, *De nat. deorum* 1. 26. Hippol. *Ref.* 1. 6. 2 (DK 12A11), and 1. 7. 2 (DK 13A7). Eus. *Praep. evang.* 1. 8. 3 = Ps.-Plut. *Strom.* 3 (DK 13A6). Hermias, *Irris.* 10 (DK 12A12).

Burnet[1] and by Kirk.[2] But neither offers any specific evidence against Theophrastus. The doxographical tradition is accepted by Professor Guthrie.[3]

Guthrie's line of thought is that the *arche* of the Milesians, being divine, was alive and self-moving.[4] Being divine, it is also eternal, ἀίδιον . . .καὶ ἀγήρω[5] or ἀθάνατον . . .καὶ ἀνώλεθρον[6] or perhaps ἀθάνατον καὶ ἄπαυστον.[7] Its self-movement is therefore eternal.

But 'eternal' is ambiguous. For the maxim that what has no end has no beginning, what is born is perishable, need not apply in early thought.[8] The gods were ἀθάνατοι, but all had been born. Similarly, for Anaximander the process of world formation could be ἀθάνατος and ἀίδιος, and yet have had a beginning, before which there could be rest.

Furthermore, Guthrie's line of thought, even if it did not represent Milesian ways of thinking, would very likely have influenced Theophrastus. In Theophrastus' eyes, if there were no cause of movement, such as is found only after Parmenides, then the *arche* would have tended to be self-moving, and an eternal *arche* would have been eternally moving.

However, a scruple over Theophrastus' reliability would in itself carry little conviction, were there no ancient evidence against him. The evidence is to be found in the passages already quoted from Plato and Aristotle. There a cosmogony from a state of rest is attributed to a majority of the Presocratics, to οἱ πλεῖστοι τῶν τοιούτων by Plato in the *Laws*, and to οἱ ἄλλοι by Aristotle in the *De caelo*. Plato's τῶν τοιούτων refers to ὁπόσοι πώποτε τῶν περὶ φύσεως ἐφήψαντο ζητημάτων, 891 c. Aristotle's οἱ ἄλλοι means 'the rest', not simply 'other philosophers', as Guthrie translates it.[9]

[1] *EGP*, p. 12, cf. p. 61. [2] *The Pres. phil.* (1957), pp. 126–9, 147, 152.

[3] *A history of Greek philosophy*, vol. I (Cambridge, 1962), pp. 4, 91, 119, 124, 127–8.

[4] Cf. Arist. *Phys.* 203 b 10–15 (DK 12 A 15), and 250 b 11–15. Kirk, *The Pres. phil.* p. 127 n. 1, is wrong to say of 250 b 22 that successive single worlds are not included. Ἢ μὴ ἀεί is divided into Anaxagoras and Empedocles. The passage is quoted above, p. 7.

[5] Hippol. *Ref.* 1. 6. 1 (DK 12 A 11, B 2).

[6] Arist. *Phys.* 203 b 13–14 (DK 12 A 15, B 3). [7] Arist. *Phys.* 250 b 13–14.

[8] For a clear statement of this maxim, see Arist. *De caelo* 279 b 17–21.

[9] Loeb edition, 1939.

'The rest' are in addition to Anaxagoras. They are opposed to the Atomists, and incidentally to Empedocles in his Love cosmogony. Who can 'the rest' and 'the majority' be, unless they include the Milesians?[1]

We are faced then with a conflict between the explicit testimony, presumably of Theophrastus, that the Milesians believed in eternal movement, and the implied testimony of Aristotle and Plato, that their world began from a state of rest.

Fortunately a compromise is possible. Anaximander need not have specified whether his precosmic *arche* was moving or at rest. Granted it was of its nature alive and self-moving, it can still have 'started' to move when the world was born. This was essentially how Hesiod began his cosmogony, *Theog.* 116,

ἤτοι μὲν πρώτιστα Χάος γένετ', αὐτὰρ ἔπειτα...

Hesiod does not tell us, and probably never asked himself, what there was before 'chaos came to be'. Similarly, Anaximander need not have considered what the *apeiron* was doing before the world was formed from it, whether it was at rest, or moving in some less genetic fashion. For that is a question that need not at once arise, if we are asking 'what the world first came from', or 'what things are really made of'.[2]

If then the precosmic movement or rest of the Milesians was left unspecified, it is possible to see both how Theophrastus, thinking of a self-moving and eternal *arche*, settled for the formula ἀίδιος κίνησις, and at the same time how Aristotle and Plato attached to all and sundry the easy notion that things were together-and-at-rest before they came to be many-and-moving.

The vagueness of the wording is some indication that Plato and Aristotle have in fact been filling out, though not contradicting, their sources:

Plato, *Laws* 895 A: εἰ σταίη πως τὰ πάντα ὁμοῦ γενόμενα...

[1] Cherniss, *ACP*, p. 194, translates 'the others'. He remarks that Aristotle implies that all the cosmologists are meant...In short, he is trying to attribute to the Ionians a precosmical material which is at rest.' Solmsen (1958), pp. 276–7, tries (unconvincingly) to explain the phrase without the Milesians.

[2] 'Before the world was formed' is intended to cover *either* the time before Anaximander's single world, *or* the time before the first member of a series of worlds, *or* the interval between one world and the next.

Aristotle, *De caelo* 301a13–14: πειρῶνται δὲ καὶ οἱ ἄλλοι συγκρίνοντές πως πάλιν κινεῖν καὶ διακρίνειν.

It is true that the wording may also indicate that Anaxagoras and Empedocles are primarily in mind. Plato's τὰ πάντα ὁμοῦ is reminiscent of Anaxagoras' ὁμοῦ πάντα χρήματα ἦν.[1] Empedocles is suggested by Plato's γενόμενα and Aristotle's πάλιν. For those two expressions are most naturally explained by successive worlds. All things for Empedocles 'come to be one', συνερχόμεν' εἰς ἓν ἅπαντα, and then again grow to be many, ἠδὲ πάλιν διαφύντος ἑνὸς πλέον' ἐκτελέθουσι.[2]

But even if, as seems likely, Anaxagoras and Empedocles are primarily in mind, the point of the argument remains. Both Plato and Aristotle have extended the notion of precosmic rest to include a majority of the Presocratics. This they could hardly have done if the precosmic *arche* of the Milesians had specifically been said to be moving.

We may further compare a passage of the *Metaphysics*, 1071b26–33, where, as Cherniss points out, it seems to be implied that it was Leucippus who first introduced strictly eternal movement.[3]

The Milesians will still be something of an exception to our rule, since the world now is still one for them in some sense and at the same time moving. That in fact is all that Aristotle's classification in the *Physics* need imply. They will be less of an exception if they did not explicitly say that their principle was always moving, or moving before the world began, when it was a unity in a stricter sense than it is now.

AFTER THE MILESIANS

A firmer idea of unity, and the association of unity with rest, is found in Xenophanes. His *one* god, fr. 23, who sees and hears and perceives with the whole of himself, fr. 24, is for ever still and has no need, nor is it proper for him, to move from place to place, frr. 25 and 26.

[1] Fr. 1; cf. *Phaedo* 72c3–5, Arist. *Met.* 1071b27–8.
[2] Fr. 17 *et alib.* The reference to Empedocles will of course be weakened if we attribute successive worlds to thinkers before his time.
[3] *ACP*, p. 173 n. 128.

The Pythagoreans add the complementary implication that what moves is many. In arranging their pairs of opposites they put rest with unity in the row of good things, and movement with plurality and evil.[1] Aristotle's reference to these Pythagoreans as 'other' than the Pythagoreans who were contemporary with and earlier than the Atomists, 985 b 23, and his naming Alcmaeon as a possible author of the theory, 986 a 27–31, confirm that the ten opposites, including rest and movement, are earlier than Parmenides.[2]

The Pythagorean antithesis of rest and movement, unity and plurality, is expressed with full force by Parmenides. What is one must be at rest, fr. 8. 29–30. It is ἀτρεμές, line 4, and ἀκίνητον, line 26. Movement is inseparable from change and plurality, lines 36–41.

These truths are accepted by Parmenides' successors and direct significant moments in their thought. Anaxagoras' original mixture, in some sense a unity, was at rest, and the effect of movement is to separate out its parts. The Atomists started with plurality and probably for that reason felt no need to explain how movement began.[3]

The antithesis is nicely put by Lucretius. If there were no void, everything would be one, 1. 660–2: *exempto rebus inani | omnia denseri fierique ex omnibus unum | corpus.* And if everything were one, it would be at rest, *stipata quiesset*, 1. 345. Conversely, if things are many, they move: *diuersa mouentur*, 1. 421, *diuersa meare*, 1. 428. Lucretius' easy acceptance of the idea shows how close it is to imaginative common sense.

[1] Arist. *Met.* 986 a 22–6. Porph. *Vita Pyth.* 38. Plut. *De Is. et Os.* 370 D–E, where there is comparison with Love and Strife.

[2] This is the opinion of Raven, *Pythagoreans and Eleatics* (Cambridge, 1948), ch. 3, and Guthrie (1962), pp. 245 ff. For an opposite opinion see Zeller, ZN, pp. 459–61, and Ross in his edition of Aristotle's *Metaphysics* (Oxford, 1924), *ad loc.*

[3] Cf. Guthrie, *J.H.S.* 77 (1957), 40–1. Of course some account was given of the nature of the atoms' movement in terms of force or repulsion, see DK 2. 96. 1–10. But it is probably wrong to think of this movement as imposed upon atoms that were φύσει ἀκίνητα, Simplicius' phrase, *Phys.* 42. 11. Simplicius however is probably right when he points out that the purpose of the Atomists' theory was to avoid the association of plurality and rest, 42. 8–11. Elsewhere Simplicius, apparently quoting Aristotle, makes explicit the association by the Atomists of movement and ἀνομοιότης, *De caelo*, 295. 9–11 = fr. 208 Rose (DK 68 A 37).

The association of plurality and movement, of unity and rest, is thus a common assumption of the fifth century. The association lies at the root of Empedocles' thought. When Love has made the elements into one they are at rest. At all other times they are separate and many and so moving. More than at any other time the elements will be moving when the power of harmony and unity is at its lowest ebb, and the force of enmity and separation has reached its height.

CHAPTER 3

SPEED

INTRODUCTION

Two authorities, Aetius and Tzetzes, record that at the beginning of Empedocles' world the sun moved more slowly than it does now. It is tempting to extend this change in the sun's speed to include all the elements and to cover the whole life of the moving world. If we do so, the picture that should probably result is that of a constant increase of speed throughout the world of increasing Strife, and a corresponding decrease of speed throughout the world of increasing Love.

This cosmic change of speed can be only conjectural, and not surprisingly it has attracted little attention. Martin suggested an increase and a decrease of speed.[1] But this was ignored. Tannery asks how this world can increase in speed if (as he thinks) it is approaching the immobility of the Sphere.[2] Kafka hits on the idea that speed increases in Hate's world.[3] But he rejects this in favour of Tannery's notion, which he follows without acknowledgment, as this suits better his thesis that Empedocles' system was a jumble of small inconsistencies. Mugler mentions changes of speed, but his remarks are vague and even inconsistent.[4] Most recently Kranz writes, 'Wie solches alles (the change in speed of the sun) sich mit seiner (Empedocles') Vorstellung vom Gesamtkosmos vereinigen liess, bleibt uns unerkennbar'.[5]

AETIUS

The passage in Aetius, 5. 18. 1 (DK 31A75), records how Empedocles explained the termination of pregnancy after seven

[1] (1879), pp. 220 and 234–5.
[2] *Science hellène*, pp. 322–3, cf. pp. 320, 321 and 324; followed by Ferrari (1891), pp. 60 and 63–5.
[3] 'Zur Physik des Empedokles', *Philologus*, 78 n.F. 32 (1923), 210–12.
[4] *Deux thèmes de la cosmologie grecque, devenir cyclique et pluralité des mondes*, in the series *Études et Commentaires*, 17 (1953), 38 and 41.
[5] *Rh.M.* n.F. 100 (1957), 124.

or ten months. At the beginning of the world, when the race of man arose from the earth, babies were conceived and born in a single day. But at that time the sun moved more slowly than it does now, and the day was at first as long as ten of our months, and later as long as seven of our months. The effect of this one-day pregnancy continues into our present world:

Ἐμπεδοκλῆς ὅτε ἐγεννᾶτο τὸ τῶν ἀνθρώπων γένος ἐκ τῆς γῆς, τοσαύτην γενέσθαι τῶι μήκει τοῦ χρόνου διὰ τὸ βραδυπορεῖν τὸν ἥλιον τὴν ἡμέραν, ὁπόση νῦν ἐστιν ἡ δεκάμηνος· προϊόντος δὲ τοῦ χρόνου τοσαύτην γενέσθαι τὴν ἡμέραν, ὁπόση νῦν ἐστιν ἡ ἑπτάμηνος· διὰ τοῦτο καὶ τὰ δεκάμηνα καὶ τὰ ἑπτάμηνα, τῆς φύσεως τοῦ κόσμου οὕτω μεμελετηκυίας, αὔξεσθαι ἐν μιᾶι ἡμέραι ἧι τίκτεται [νυκτὶ excl. Diels, *Dox.*] τὸ βρέφος.

TZETZES

Tzetzes, *Exeg. in Iliad.* ed. Hermann 41. 14 ff., is allegorizing the story of the Judgment of Paris. The marriage of Peleus and Thetis, after which the judgment is said to have taken place, symbolizes the mingling of earth and water after these elements have been separated from an indiscriminate mass at the beginning of the world. The three goddesses, whose beauty Paris must judge, represent the remaining elements, fire, air and a mixture of fire and air. The quarrelling between the three goddesses represents the battle of these elements, a battle, Tzetzes recalls, such as Empedocles described in his cosmogony after the appearance of earth and sea (Peleus and Thetis). Among the general confusion of the elements at that time, the sun had difficulty in keeping to its regular course and it moved so slowly that it took seven months to complete the journey of a single day. That, Tzetzes adds, is the reason Empedocles gave for seven-month pregnancies, 42. 15–43. 7:

ἔρις δὲ Ἥρας καὶ Ἀθηνᾶς καὶ Ἀφροδίτης ἐστὶν ἡ τοῦ πυρώδους καὶ ἀερώδους καὶ τῆς συγκράσεως σύγχυσις, ἤτοι τῆς Ἀφροδίτης· κατὰ γὰρ Ἐμπεδοκλέα τὸν φυσικὸν καὶ μετὰ τὸ γῆν φανῆναι καὶ θάλασσαν ἀτάκτως καὶ ἔτι τὰ στοιχεῖα κεκίνητο, ποτὲ μὲν τοῦ πυρὸς ὑπερνικῶντος καὶ καταφλέγοντος, ὁτὲ δὲ τῆς ὑδατώδους ὑπερβλυζούσης καὶ κατακλυζούσης ἐπιρροῆς. καὶ τὸν ἥλιον δὲ ὁ αὐτὸς διὰ τὸ ἄτακτόν φησι τῆς φορᾶς[1] καὶ ἀστήρικτον τοσοῦτόν τε τῆι ἡμερησίωι βραδύνειν

[1] Scripsi. φθορᾶς cod.

πορείαι ὅσος νῦν καιρός ἐστιν ὁ ἑπτάμηνος. διὰ δὴ τοῦτό φησιν ζωιογονεῖσθαι καὶ τῶν βρεφῶν τὰ ἑπτάμηνα. αὕτη ἡ ἔρις τῶν στοιχείων, ὡς εἴπομεν, ἀταξία καὶ σύγχυσις. τί δὲ τὸ μῆλον; ὁ κόσμος ἐστίν· σφαιροειδὴς γάρ, ὥσπερ τὸ μῆλον. ἔμελλε δὲ οὕτοσὶ τοῦ νενικηκότος κατ' ἐπικράτειαν στοιχείου ἔπαθλον εἶναι, καὶ ὑπ' ἐκείνου δεσπόζεσθαι, ἢ πυρὸς ἢ ἀέρος εἴτε καὶ τῆς συγκράσεως, ἦγουν τῆς Ἀφροδίτης· ἥτις ὑπερτερήσασα τὸ χρυσοῦν, ἤτοι τὸ τίμιον σφαιρίον τοῦ κόσμου παντός, τὸ μῆλον κατέχει. τοιαῦτα οἶμαι περὶ τῆς ἀρχαιογονίας Ἀλέξανδρος συνεγράψατο.

There is one verbal parallel: βραδυπορεῖν in Aetius, βραδύνειν πορείαι in Tzetzes.[1]

THE TIME OF THE INITIAL INCREASE

It is crucial to be able to distinguish at the beginning of which world the sun moved more slowly than it does now. Failure to do so confuses Kafka. Only if that is known can we try to extend the change in speed to cover the rest of the life of the world.

Certainly the thesis here will be, in chapters 8 and 9 (pp. 156 ff. and 196 ff.), that there were no major events peculiar to Strife's world or to Love's world, so that in both worlds, as young Socrates says in the *Politicus* 271 c, there will have been a sun and stars and so forth. But what will not have been the same in both worlds is the direction of change. In Love's world the elements become increasingly united; in Strife's world they become increasingly separated. A change in speed may very likely have been attached to this difference in the direction of change in general, and so have been different in either world.

Which world then in its early days saw the sun increase its speed?

Since the Sphere was at rest, the most natural place for an increase in the sun's speed will have been in the period that followed the Sphere. The sun will thus have increased its speed as it moves away from the time of rest. Conversely, if the events of Strife's world are repeated in the reverse order under increasing Love, the sun will have slackened its speed as it returned towards the time of rest. This is as it should be.

[1] The point of both passages is not of course that time as such goes faster or slower, which would raise considerable difficulties. The sun changes its speed against a standard of time (the equivalent of a present 'day') which is constant.

This conclusion finds confirmation in several ways.

1. First, Tzetzes describes the sun's increase of speed as part of a storm of the elements. Several other passages directly or indirectly associated with Empedocles mention a storm of the elements. The cumulative evidence of these passages makes it likely that a storm of the elements at the beginning of the world was itself a feature of Empedocles' system. These passages, from Aristotle, Plato and Lucretius, as well as from elsewhere in Tzetzes, are for convenience listed separately (note 4, pp. 268–73).

One other source, Plutarch, also describes the sun's irregular movement as part of a storm of the elements, *De esu carnium* 993 D–E:

ἔτι μὲν οὐρανὸν ἔκρυπτεν ἀὴρ καὶ ἄστρα, θολερῶι καὶ δυσδιαστατοῦντι πεφυρμένος[1] ὑγρῶι καὶ πυρὶ καὶ ζάλαις[2] ἀνέμων· 'οὔπω δ' ἥλιος' ἵδρυτο ἁπλανὴς[3] καὶ βέβαιον

'ἔχων δρόμον, ἠῶ
καὶ δύσιν ἔκρινεν, περὶ δ' ἤγαγεν αὖθις ὀπίσσω
καρποφόροισιν ἐπιστέψας καλυκοστεφάνοισιν
ὥραις, γῆ δ' ὕβριστο'

ποταμῶν ἐκβολαῖς ἀτάκτοις, καὶ πολλὰ[4] 'λίμναισιν ἄμορφα' καὶ πηλοῖς βαθέσι καὶ λόχμαις ἀφόροις καὶ ὕλαις ἐξηγρίωτο.

Empedocles is not named here, but the storm of the elements and the sun's irregular movement are a probable indication of his presence. Plutarch's storm compares with the storm associated with Empedocles in the passages listed in note 4. The sun's irregular movement is an unusual feature which can probably be identified with Aetius' slow movement and with Tzetzes' slow and irregular movement.[5]

If Plutarch's passage is Empedoclean, then the coupling of the sun's irregular movement with the storm of the elements, in itself a likely enough arrangement, is shown to be genuine since it appears independently in both Plutarch and Tzetzes. The absence of Empedocles' name in Plutarch and Tzetzes' knowing that the

[1] Wilamowitz, *Hermes*, 40 (1905), 168 n. 2. -μένα mss.
[2] The same word is twice used in Tzetzes' account of the storm, see pp. 268–9 below.
[3] Wilamowitz. ἀπλανῆ mss.
[4] πεδία Wilamowitz.
[5] For further indications of Empedoclean influence see Bignone, pp. 446–9.

sun's irregular movement is a slow movement are together sufficient guarantee that Tzetzes is not simply copying the passage in Plutarch.

Now other sources for the storm of the elements, Aristotle, Plato and Lucretius, show that it was part of Strife's cosmogony. Therefore the sun's slow movement, if it was part of the storm of the elements, must have been part of Strife's cosmogony.

2. Secondly, several versions of Strife's cosmogony include the formation of the sun.[1] The sun's origin and its increase in speed could very well have been treated together.

3. Finally, even the connection with pregnancy helps in a small way to place the sun's increase of speed at the beginning of our world. For the account of sex and reproduction[2] most probably followed Empedocles' account of the separation of whole-natured forms into the bodies of men and women,[3] and this was an event which belonged to the present world of increasing Strife.[4] If then Empedocles was explaining pregnancy as it is today, it would have been more plausible for him to do so by referring to an event at the beginning of our world, and not to something that had happened in the preceding world of increasing Love.

SPEED AND STRIFE

The sun increased its speed then in the period which followed the Sphere. How, if at all, did this change in speed continue?

There come to mind only two ways of extending symmetrically the progressive increase of speed at the beginning of Strife's world, and allowing for a corresponding decrease of speed at the end of Love's world. First, the speed of movement may have continued to increase until the mid-point of the world of increasing Strife, and then declined until the time of Strife's total victory. Within Love's world there will then have been a similar increase and decrease of speed. Otherwise, the speed of movement could have continued to increase throughout Strife's world, and then constantly decreased throughout the world of increasing Love.

[1] Philo, *De prov.* 2, p. 86 Aucher (DK 31 A 49). Eusebius, *Praep. evang.* 1. 8. 10 (DK 31 A 30). Aetius 5. 26. 4 (DK 31 A 70). Cf. perhaps frr. 38 and 71.
[2] Frr. 63–70.
[3] Fr. 62, Simpl. *Phys.* 381. 29–30.
[4] See pp. 209–10 below.

The second view is the more likely. If speed reaches its maximum in between the full power of Love and the full power of Strife, then it must be thought of as a largely independent factor not controlled by either Love or Strife. It is more likely that a cosmic change of speed would be dependent on one of the powers. In that case the course of speed would be parallel to the career of Strife, increasing and decreasing with the waxing and waning of Strife's power.

Is there any evidence that speed was attached in this way to the career of Strife and thus made a general feature of Empedocles' system?

1. Speed and separation are found united in Anaxagoras, fr. 9: . . .οὕτω τούτων περιχωρούντων τε καὶ ἀποκρινομένων ὑπὸ βίης τε καὶ ταχυτῆτος. βίην δὲ ἡ ταχυτὴς ποιεῖ. Nothing so explicit is found in Empedocles. But we do find Speed and Slowness included along with Movement and Rest in a list of μοῖραι καὶ δαίμονες.[1] These *daimones* are evidently in some way manifestations of Love and Strife. They are arranged in pairs, one good, one bad.[2] One pair is even said to be Δῆρίς θ' αἱματόεσσα καὶ Ἁρμονίη θεμερῶπις. These two, Plutarch tells us elsewhere, are alternative names for the cosmic forces of Love and Strife.[3]

2. More significantly perhaps, the idea that speed of movement is responsible for the separation of the elements seems to have been applied in a practical way in some details of the physical system.

Thus the earth is kept at the centre of the world, and the firmament and heavenly bodies are held at the circumference, by the preponderating speed of the *dine*, Arist. *De caelo* 295a16–18:

οἱ δ' ὥσπερ Ἐμπεδοκλῆς, τὴν τοῦ οὐρανοῦ φορὰν κύκλωι περιθέουσαν καὶ θᾶττον φερομένην τὴν τῆς γῆς φορὰν κωλύειν.

284a24–6: οὔτε διὰ τὴν δίνησιν θάττονος τυγχάνοντα φορᾶς τῆς οἰκείας ῥοπῆς ἔτι σώζεσθαι τοσοῦτον χρόνον, καθάπερ Ἐμπεδοκλῆς φησίν.[4]

[1] Frr. 122 and 123, quoted by Plutarch, *De tranq. animi* 474B–C.
[2] Cf. Arist. *Met.* 984b32–985a10.
[3] *De Is. et Os.* 370D–E, cf. p. 333 below.
[4] Whether in this latter passage the subject is firmament, or heavenly bodies, or both, is not clear. For a passing reference, *De caelo* 300b2–3.

The firmament and the heavenly bodies are made of fire and air.[1] Thus by virtue of its preponderating speed the *dine* is doing the work of Strife in keeping the upper and lower elements apart.[2]

3. The effect of speed should perhaps also be seen in the sea's origin. At a fairly late stage in the world's development—when therefore the speed of the *dine* would have increased—the sea is squeezed out of the central mass of earth and water: τῆι ῥύμηι τῆς περιφορᾶς.[3] 'Force' is a frequent connotation of ῥύμη.[4] It would be easy therefore to see here an application of Anaxagoras' principle, βίην δὲ ἡ ταχυτὴς ποιεῖ. In that case speed would here again in some sense be the cause of separation.

4. The association of speed and Strife would fit in with another important part of Empedocles' scheme, the growth and decline of living creatures. For the increase in the sun's speed could well have affected more than pregnancy. Philolaus also knew of a day longer than ours.[5] On the moon, he said, the day is fifteen times longer than here on earth, and animals and plants on the moon are just fifteen times bigger and more beautiful than those on earth. Herodorus of Heraclea is also said to have believed that children on the moon were fifteen times the size of those on earth, very probably for the same reason.[6]

Empedocles' longer days we may expect to have had a similarly invigorating effect. And in fact we find that the whole-natured beings at the beginning of our world were more harmonious creatures than we are.[7] We are also told that men now are as infants compared with those of olden times.[8] The process of deterioration

[1] Aet. 2. 11. 2 (DK 31A51), 2. 13. 2 (DK 31A53), 2. 25. 15 (DK 31A60). Cf. Plut. *De fac. in orbe lun.* 922C, Philoponus, *De gen. et corr.* 17. 9.

[2] This perhaps is the relevance of the enigmatic remark that 'the sun is moved by Strife', [Arist.] *Met.* α′ 994a5–7.

[3] Aet. 2. 6. 3 (DK 31A49). Cf. Philo, *De prov.* 2, pp. 86–7 Aucher (DK 31A66). Whether the rotation in Aetius is the rotation of the earth, in that case the first time in antiquity that the earth has moved, is not clear. Probably the report in Aetius reflects the idea in fr. 56, ἅλς ἐπάγη ῥιπῆισιν ἐωσμένος ἠελίοιο, in which case the rotation is the rotation of the sun. Cf. pp. 293–6 below.

[4] See L.S.J., *s.v.*

[5] Aet. 2. 30. 1 (DK 44A20).

[6] *Ap.* Athenaeus 2. 57F = fr. 21, 1. 219. 22 Jacoby. A less likely explanation of the number 15 is offered by Müller, *Fragmenta historicorum graecorum* (Parisiis, 1841–72), vol. 2, p. 35.

[7] See pp. 205–7 below.

[8] Aet. 5. 27. 1 (DK 31A77).

is not complete. At the end of Strife's world creatures will be even poorer things than they are now.[1]

Given the example of Philolaus and Herodorus it is not unreasonable to associate this decline of living creatures from their first strength and completeness, a decline which in chapter 9 we shall see is the result of Strife's increasing power, with the sun's gathering speed and the shortening of the days.[2]

We have then these few indications that the sun's increase of speed, recounted by Tzetzes and Aetius, even apart from its effect on pregnancy, was not an isolated phenomenon. Speed seems to have been associated with Strife in the separation of the elements and in the disintegration of animal life.

The full parallel between an increase and decrease of speed and the increase and decrease of Strife's power has one last claim to our acceptance. In the next chapter it will be argued that it was part of Love's nature to be the cause of rest, and of Strife's nature to be the cause of movement (see pp. 101–3). If that is correct, then an increase of movement, a faster movement, will very likely have been the effect of an increase in Strife's power. Conversely, the slowing down of movement towards a time of rest would very naturally be explained by an increase of Love's power in the world.[3]

ARISTOTLE

It is interesting that Aristotle mentions the possibility of the world alternating between an increase and decrease of speed as part of his demonstration that the outermost heaven revolves at a uniform rate, *De caelo* 289a4–8:

λείπεται δὴ λέγειν ἐναλλὰξ εἶναι τῆι κινήσει τὸ θᾶττον καὶ τὸ βραδύτερον· τοῦτο δὲ παντελῶς ἄλογον καὶ πλάσματι ὅμοιον. ἔτι δὲ καὶ τὸ μὴ λανθάνειν ἐπὶ τούτων εὐλογώτερον· εὐαισθητότερα γὰρ τὰ παρ' ἄλληλα τιθέμενα.

[1] See pp. 218–29 below.

[2] The argument is not that Herodorus or Philolaus has any idea of a cosmic change of speed. Their length of day is sufficiently explained by the astronomical fact: the moon turns completely on its axis once a month, so that a lunar 'day-time' is half that period. What may throw light on Empedocles is that this longer day has biological effects.

[3] Speed as a cause of separation, and a cosmic change in speed, may help to explain Aristotle's criticism of Empedocles' *dine*, see pp. 262–5 below.

The fact that Aristotle includes this view simply in order to exhaust the number of possible views he has to consider, and with no reference to Empedocles, need not count against the belief that the theory he describes would be like the one held by Empedocles. Aristotle may refer to an alternation between rest and movement in just the same brief and apparently disinterested way in the *Metaphysics*, without giving Empedocles' name and with no hint of the discussion in the *Physics*.[1] Nor are Aristotle's remarks that such a view is illogical, like a nightmare, and refuted by the evidence of the senses untypical of his criticisms of Empedocles. Such harsh words can be paralleled from elsewhere.[2]

But it is perhaps more likely that Aristotle has not stopped to consider Empedocles here. For his remark that such a change of speed would have been easily perceptible and would not have escaped our notice suggests that he is thinking of a change of speed that would be readily observable within the compass of a single lifetime.

It is possible however that Aristotle is thinking of longer-term changes that would be evident only from less direct observations. Such a notion was not unknown in antiquity, even apart from its conjectural appearance here in Empedocles. The priests of Ammon in Plutarch's day thought that they had detected an increase in the world's speed. This they inferred from the decreasing amount of oil needed to keep their perpetual lamp alight.[3]

[1] *Met.* 1012b29–30: ἀλλὰ μὴν οὐδὲ πάντα ἠρεμεῖ ἢ κινεῖται ποτέ, ἀεὶ δ' οὐθέν. This may mean that the elements move and are at rest separately, or together. The latter interpretation, which would be like Empedocles' view, is the one taken apparently by Alexander, *Met.* 342. 37–343. 3, who refers to the discussion in the eighth book of the *Physics*, and by Syrianus, *Met.* 79. 8–13.

[2] *De gen. et corr.* 333b24–6. *De anima* 418b20–6.

[3] *De def. orac.* 410B–411D. It is not a serious disadvantage to our reconstruction that although Plutarch is fond of citing Empedocles (cf. pp. 32–3 above), nonetheless he does not refer to him here. For one of the explanations offered later of the phenomenon at the temple of Ammon, ἀτακτεῖν ταῖς κινήσεσι τὸν ἥλιον, 411B, comes very close to the description quoted above, p. 49, from the *De esu carnium*, and this we know, from Aetius and Tzetzes, was an Empedoclean idea. But Plutarch refrains from mentioning Empedocles, both in the extended description of the *De esu carnium*, and in this brief mention in the *De defectu oraculorum*.

CHAPTER 4

TIME

INTRODUCTION

How long does the Sphere last? For how long are the elements fully separated under Strife's complete power? How long are the periods of increasing Love and increasing Strife?

It has been thought, for example by Zeller[1] and Winnefeld,[2] that no answer was given to these questions. Winnefeld writes, 'darüber schweigt Empedokles'. It is unlikely, however, on quite general grounds, that Empedocles should altogether have failed to specify the relative duration of various parts of his cycle (see pp. 71–5 below).

On the positive side two main answers have been given hitherto.

1. First, it has been thought that the Sphere and Strife's complete victory were each instantaneous, each a moment of equilibrium between the worlds of increasing Love and increasing Strife. This view appears initially in Ritter.[3] Since then it has been repeated, in part at least, by several writers.[4] The most extreme and most forceful expression of this view is to be found in a Russian author, Radloff, who writes to the effect that, 'Complete unity and total separation must have been presented as *moments* of equilibrium between the two opposing forces, moments which, in virtue of the alternate superiority of two contemporaneously acting principles, must have seemed *timeless*, *mathematical points*

[1] ZN, pp. 971–3.

[2] (1862), p. 22.

[3] 'Über die philosophische Lehre des Empedokles', in *Analecta Litteraria*, ed. F. Wolf (2 vols., Berolini, 1817–18), vol. 2 (1818), p. 444.

[4] Diès, *Le cycle mystique, la divinité, origine et fin des existences individuelles dans la philosophie antésocratique* (Paris, 1909), pp. 92–3. Mugler (1953), pp. 41–2 and 44–5. Capelle (1935), p. 185. Rey, *La science dans l'antiquité*, vol. 3, *La maturité de la pensée scientifique en Grèce* (Paris, 1939), p. 107. Boussoulas, 'La structure du mélange dans la pensée antique', *Sophia*, 28 (1960), 381–2. Capelle, Rey and Boussoulas speak only of the Sphere and do not commit themselves on the question of total Strife. Karsten, p. 366, and Panzerbieter, p. 3, introduce instantaneous extremes as part of the idea of continuous movement.

of time' (my italics).[1] There is a similar brief argument in Solmsen.[2] Most recently Minar speaks tentatively of the Sphere as 'a veritable *Augenblicksgott*'.[3]

No evidence is offered for this view. It has perhaps in part arisen from a misunderstanding of fr. 35. 14–15. In these verses we are told that the elements that were wont to be immortal changed their ways and quickly (αἶψα) became mortal. This seems to have been referred to a sudden break-up of the Sphere, for example by Gilbert.[4] In fact, as we shall observe in the next section, these lines describe the opposite end of the cycle, the change-over from increasing Strife to increasing Love. It is very unlikely that the Sphere was instantaneous (see pp. 69–70 below).

2. The second answer has been that the history of each cycle was divided into four equal periods: the fully separated elements, increasing Love, the Sphere, increasing Strife. This is Bignone's view,[5] and is evidently the interpretation that Zeller would attribute to Aristotle.[6]

The evidence given by Zeller and Bignone for their view is a remark of Aristotle that Empedocles should have explained why his world operated δι' ἴσων χρόνων, *Phys.* 252a31. Both Zeller and Bignone understand Aristotle to mean by this expression alternate periods of rest and movement.[7] But Zeller's interpretation of Aristotle's remark is vitiated by his false belief that there were two periods of rest in each cycle, total Love and total Strife

[1] Radloff, 'Empedocles', *Journal of the Ministry of Public Education, section of classical philology* (1889), part 263 (May), p. 41 (in Russian).

[2] (1958), p. 281.

[3] (1963), p. 136, cf. p. 127, and see pp. 160–1 below.

[4] (1911), p. 209. Gilbert does not cite the fragment, but seems to have it in mind.

[5] P. 223, cf. pp. 425 and 591–2.

[6] ZN, p. 971 n. 1. There are some uncertain and imprecise remarks to the same effect in Ferrari (1891), pp. 58–60, in Covotti, *La filosofia nella Magna Grecia e in Sicilia fino a Socrate*, in *Annali delle Università Toscane* 23 (Pisa, 1901), pp. 150–1, and in Millerd (1908), p. 53. Ferrari evidently intends increasing Love to equal increasing Strife and total Love to equal total Strife, but without specifying whether these two pairs of times are equal to each other.

[7] This is also the view of von Arnim (1902), p. 18, and of Gilbert (1911), p. 209 n. 1, neither of whom attempts to draw out the implications of the remark.

(see p. 5 above). Bignone rightly holds that under total Strife the elements were moving (see p. 4 above). But Bignone also holds that Aristotle has wrongly attributed two rest periods to Empedocles (see p. 17 above). This again therefore gives four periods, two of rest and two of movement.[1]

Here it will be argued that Aristotle's ἴσοι χρόνοι do almost certainly refer to equal periods of rest and movement. But that is not at once obvious. At first sight Aristotle's remark could refer to any two or more periods in the cycle, and this gives rise to several possible interpretations. A detailed analysis of the passage is necessary to determine which interpretation is the true one.

If Aristotle's ἴσοι χρόνοι are equal periods of rest and movement, then it will follow from the conclusions of chapter 2 that the life of the cycle is divided primarily into halves: the Sphere, where all is unity and rest, and the world of plurality and movement.

This throws no light on the division of time within the world of movement. For reasons of symmetry we may be sure that increasing Love was equal to increasing Strife. But for how long were the elements fully separated between these two worlds—for a moment or two, for as long as the world of increasing Love (or Strife), or for some unspecified length of time?

The evidence here is fr. 35. It will be argued that the opening lines of that fragment show that the time of Strife's total power was of no significant duration, transitory only.

Thus our conclusion will be that the whole life of the world was taken up by two alternations, of which one was subordinated to the other. There was a primary alternation between rest and movement, or between the Sphere and the world of plurality. There was secondly a minor alternation within the world of plurality and movement between increasing Strife and increasing Love, divided by a moment or two, and no more, of total Strife. Both alternations were made of equal parts, of halves. Increasing Love lasted for as long as increasing Strife. The Sphere lasted for as long as the world of plurality and movement.

This conclusion, we shall argue, draws support from fr. 30 and

[1] Bignone fails to consider whether Aristotle's evidence on time, expressed as it is in terms of rest and movement, would still be true, if, as Bignone thinks, Aristotle was mistaken over the condition of the separated elements.

from descriptions of the cycle in secondary sources, notably Plato. We shall also hope to show that equal periods for rest and movement are a satisfactory answer to the inner needs of Empedocles' system.

THE LENGTH OF TOTAL STRIFE

The only direct evidence for the duration of Strife's total power is in fr. 35. We have already used the opening verses of this fragment to help prove that the elements under total Strife were moving (pp. 25–6). As on that occasion, we must here again defer detailed analysis of the fragment until chapter 5. It is unfortunate to have to impose on the reader this suspension of belief over two important features of our reconstruction. But there is no other way of attempting to preserve some clarity and simplicity in the exposition of a subject for which the evidence is at once so fragmented and so intertwined, one part with another.

We shall argue in chapter 5 (pp. 106–20) that the opening verses of this fragment describe the transition from the world of increasing Strife to the world of increasing Love, lines 3–5:

> ἐπεὶ Νεῖκος μὲν ἐνέρτατον ἶκετο βένθος
> δίνης, ἐν δὲ μέσῃι Φιλότης στροφάλιγγι γένηται,
> ἐν τῆι δὴ τάδε πάντα συνέρχεται ἓν μόνον εἶναι.

'*When* Strife has reached the depth of the *dine*—that is when Strife has reached the culmination of its power—(*then*) the elements (begin to) come together to be one only, etc.' This close time sequence makes it clear that there is no room here for any prolonged period after Strife has reached the depth of the *dine* and before the elements begin to come together under Love's power. The lines clearly imply that total Strife is transitional, not exactly instantaneous perhaps—the idea of a moment or an instant is introduced with something of a flourish in Plato's *Parmenides*, 156D–E—but short simply, of no significant duration.

There is probably the same implication in lines 14–15 at the end of the fragment:

> αἶψα δὲ θνητὰ φύοντο, τὰ πρὶν μάθον ἀθάνατ' εἶναι,
> ζωρά τε, τὰ πρὶν ἄκρητα, διαλλάξαντα κελεύθους.

We shall argue below that these lines recapitulate the description given in the opening of the fragment of the transition of the elements from total domination by Strife to the beginnings of domination by Love. 'Quickly they grew to be mortal, that before were wont to be immortal: and changing their ways they grew to be mixed, that before were unmixed.' The elements are immortal under total Strife probably because they are then free from change. They become mortal again when Love's power begins to increase, and the elements are drawn once more therefore into transitory combinations with one another, during their return to the Sphere. What is significant for our present purpose is that the elements become mixed and mortal *quickly*, αἶψα. The reason for this is probably that, as has been implied in lines 3–5, Love intervenes more or less as soon as the elements have been fully separated by Strife.

ARISTOTLE'S 'EQUAL TIMES'

The crucial phrase for establishing the duration of the Sphere, τὸ δὲ καὶ δι' ἴσων χρόνων δεῖται λόγου τινός, occurs at the end of Aristotle's second and longer discussion of Empedocles' theory of alternate rest and movement in the last book of the *Physics*, 252a3–32, a passage of which part has been quoted and made use of in chapter 2 (pp. 7–9):

εἰ δὴ ταῦτ' ἀδύνατα, δῆλον ὡς ἔστιν ἀίδιος κίνησις, ἀλλ' οὐχ ὁτὲ μὲν ἦν ὁτὲ δ' οὔ· καὶ γὰρ ἔοικε τὸ οὕτω λέγειν πλάσματι μᾶλλον. ὁμοίως δὲ καὶ τὸ λέγειν ὅτι πέφυκεν οὕτως καὶ ταύτην δεῖ νομίζειν εἶναι ἀρχήν, ὅπερ ἔοικεν Ἐμπεδοκλῆς ἂν εἰπεῖν, ὡς τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος ὑπάρχει τοῖς πράγμασιν ἐξ ἀνάγκης, ἠρεμεῖν δὲ τὸν μεταξὺ χρόνον.

There follows a consideration of Anaxagoras. Aristotle resumes, a19:

διόπερ βέλτιον ὡς Ἐμπεδοκλῆς, κἂν εἴ τις ἕτερος εἴρηκεν οὕτως ἔχειν, ἐν μέρει τὸ πᾶν ἠρεμεῖν καὶ κινεῖσθαι πάλιν· τάξιν γὰρ ἤδη τιν' ἔχει τὸ τοιοῦτον. ἀλλὰ καὶ τοῦτο δεῖ τὸν λέγοντα μὴ φάναι μόνον, ἀλλὰ καὶ τὴν αἰτίαν αὐτοῦ λέγειν, καὶ μὴ τίθεσθαι μηδὲν μηδ' ἀξιοῦν ἀξίωμ' ἄλογον, ἀλλ' ἢ ἐπαγωγὴν ἢ ἀπόδειξιν φέρειν· αὐτὰ μὲν γὰρ οὐκ αἴτια τὰ ὑποτεθέντα, οὐδὲ τοῦτ' ἦν τὸ φιλότητι ἢ νείκει εἶναι, ἀλλὰ τῆς μὲν

τὸ συνάγειν, τοῦ δὲ τὸ διακρίνειν. εἰ δὲ προσοριεῖται τὸ ἐν μέρει, λεκτέον ἐφ' ὧν οὕτως, ὥσπερ ὅτι ἔστιν τι ὃ συνάγει τοὺς ἀνθρώπους, ἡ φιλία, καὶ φεύγουσιν οἱ ἐχθροὶ ἀλλήλους· τοῦτο γὰρ ὑποτίθεται καὶ ἐν τῶι ὅλωι εἶναι· φαίνεται γὰρ ἐπί τινων οὕτως. τὸ δὲ καὶ δι' ἴσων χρόνων δεῖται λόγου τινός.

This passage is our best evidence for the duration of the Sphere, and therefore requires the most careful consideration.

At first sight δι' ἴσων χρόνων in the last sentence could perhaps refer to any two or more periods in Empedocles' scheme:

1. the repetition of complete world cycles;
2. rest and movement, or the Sphere and the world of plurality;
3. increasing Love and increasing Strife;
4. the Sphere and total Strife;
5. three equal times, increasing Love, the Sphere, increasing Strife.

The remaining two possibilities we are able to exclude because they make total Strife equal to increasing Love or increasing Strife, contrary to what on our interpretation is the implication of fr. 35:

> three equal times, increasing Strife, total Strife, increasing Love;
>
> four equal times, increasing Love, increasing Strife, total Strife and the Sphere.[1]

Our choice from the five possibilities that remain must depend on how we view the relation between the last phrase and the argument which has preceded it. Is it an aside, a footnote incidental to the remarks that have preceded? Or is it an integral part of Aristotle's argument?

A close examination of the passage makes it reasonably certain that τὸ δὲ καὶ δι' ἴσων χρόνων is an integral part of Aristotle's argument, so that it refers to what has been Aristotle's main concern throughout the passage, alternate movement and rest.

The burden of Aristotle's argument is this. Empedocles has a world which alternates between rest and movement. What is the cause of this? Not Love and Strife, for they control only their own functions, not their relation to one another. Love may be the cause of union (and so, we should argue, of rest) and Strife the

[1] This is the interpretation of Zeller and Bignone, see pp. 56–7 above.

cause of separation (and so of movement). But why do they alternate in power? Alternation demands a further explanation.[1]

Attached to this central argument there are two points in Empedocles' favour.

1. First, 252a10–20, he has avoided the inexplicable first movement of Anaxagoras. As Aristotle explains more fully in the *De caelo*, Empedocles' world is really as good as an eternal world, for it is freed from the absurdity of absolute generation or destruction and changes only in its structure.[2]

2. Empedocles' second advantage, 252a28–32, serves only to emphasize his failing. By his universalization of Love and Strife he has shown that he is capable of the right kind of explanation. He knows, as it were, what is the duty of a philosopher. But he has failed to provide a cause that will explain alternation in the same way that Love and Strife explain attraction and repulsion.

Fundamentally therefore Aristotle's point remains a hostile one. Here, as elsewhere, Aristotle complains that Empedocles has failed to provide a first cause.[3]

This being so, the alternation between rest and movement and Empedocles' failure to provide a cause for this alternation constitute Aristotle's central interest. To this are subordinated the other points in the passage. The structure of the argument may then be represented thus:

252a5–10. Empedocles is wrong to make *alternate rest and movement* a law of nature.

10–19. Anaxagoras makes things still more disorderly and contrary to nature.

19–22. Empedocles' *alternate rest and movement* has some order.

22–5. But it still requires an explanation.

[1] That Love is cause of rest and Strife of movement will in part be derived from our analysis of this passage, pp. 101–3. Therefore to press for the inclusion of rest and movement in our summary would make the argument circular. But we have already noted the close association of unity and rest and of separation and movement in the thought of the Presocratics, pp. 38–45, and in Aristotle's assessments of them, pp. 39–40. It is fair therefore to point out that if we read the present passage with this association in mind, we see more clearly the relevance of Aristotle's remarks about Love and Strife to the purpose of the general discussion about movement and rest.

[2] 279b14–17 and 280a11–23.

[3] *De gen. et corr.* 334a5–9; *Met.* 1000b12–17.

25–7. Love and Strife explain some things.

27–8. *Alternation* is something else.

28–31. Love and Strife explain some things.

31–2. *Alternation*, τὸ δὲ καὶ δι' ἴσων χρόνων, is something else.

Thus the sequence of the argument would make it unnatural for Aristotle to conclude by telling us what Empedocles has done, 28–31, and not what he has not done, 31–2. Aristotle's limited praise of Love and Strife loses its point unless it is referred to the lack of a similar cause of alternation. The final reminder in τὸ δὲ καὶ δι' ἴσων χρόνων of Empedocles' failure to explain alternation therefore completes the argument and is an essential part of it.

But, it may be objected, what of time? Surely time is the important point. There are, says Aristotle, equal times in Empedocles' system, and these also need explaining, along with whatever else Empedocles has failed to justify.

This is to misunderstand the whole trend of the argument. It is true that Aristotle's writing is often curt and jerky. It is also true that time as such is a fresh point. But Aristotle is not therefore adding purely *as an afterthought* that 'equal *times* also need explaining'. What the sequence of his argument requires is that *alternation* by equal times needs explaining. That is where the emphasis lies. The introduction of time is hardly more than a variation on the theme of alternation.

Διά with the genitive helps to make it clear that δι' ἴσων χρόνων does not refer to equal times in some loose and general way. For the context is against διά here referring to simple duration, 'for equal times'. Διά here will have the more restricted sense of 'at successive intervals' (see L.S.J., *s.v.*). Δι' ἴσων χρόνων means 'at—or for—equal and successive intervals of time'.

The position of καί also shows what is meant. There is a difference between καὶ τὸ δι' ἴσων χρόνων, 'another fact, equal times', and τὸ καὶ δι' ἴσων χρόνων, 'the fact of there being equal times *in addition* (to the workings of Love and Strife)'.

This is not quibbling. From its position it can be seen that καί does not serve to connect with what has preceded either the verb δεῖται, or the subject of the verb, τὸ δι' ἴσων χρόνων. That connection, the external connection, is supplied by δέ. καί is internal. It qualifies δι' ἴσων χρόνων. It does so by referring to συνάγει and

φεύγουσιν. The meaning is, 'But (δέ) the fact that (τό) this—the action of Love and Strife—also happens (καί) at equal and successive intervals of time (δι' ἴσων χρόνων) needs an explanation'.

In its context therefore τὸ δὲ καὶ δι' ἴσων χρόνων can mean only that equal and successive intervals of time are added to, or imposed upon, the workings of Love and Strife, as they have been described in the preceding passage, so that they alternate.

Further confirmation of the subordinate importance of time comes from the way that Aristotle has repeated the last parts of his argument:

A. 252a25–7. αὐτὰ μὲν γὰρ οὐκ αἴτια τὰ ὑποτεθέντα, οὐδὲ τοῦτ' ἦν τὸ φιλότητι ἢ νείκει εἶναι, ἀλλὰ τῆς μὲν τὸ συνάγειν, τοῦ δὲ τὸ διακρίνειν.

B. 27–8. εἰ δὲ προσοριεῖται τὸ ἐν μέρει, λεκτέον ἐφ' ὧν οὕτως,

A 1. 28–31. ὥσπερ ὅτι ἔστιν τι ὃ συνάγει τοὺς ἀνθρώπους, ἡ φιλία, καὶ φεύγουσιν οἱ ἐχθροὶ ἀλλήλους· τοῦτο γὰρ ὑποτίθεται καὶ ἐν τῶι ὅλωι εἶναι· φαίνεται γὰρ ἐπί τινων οὕτως.

B 1. 31–2. τὸ δὲ καὶ δι' ἴσων χρόνων δεῖται λόγου τινός.

It is essential to understand the sequence of thought here.

At first, 252a25–8, Aristotle says simply that Love and Strife cause their own activities, but not the co-ordination of their activities into an alternate rule. At ὥσπερ Aristotle is drawn away by his fondness for a particular kind of criticism into repeating very nearly what he has already said. Aristotle's purpose is to turn the argument so as to make Empedocles bear witness against himself. The very soundness, from the point of view of method, of Empedocles' description of Love and Strife is used to convict him of the failure to explain alternation with equal penetration.

Precisely this angle of criticism can be seen again at *Physics* 199b7–9. Whole-natured creatures show recognition of the principle that every animal must be born from a seed. This very principle the birth of animal parts denies. Again Empedocles is made to condemn himself out of his own mouth (cf. p. 208 below).

The sequence of thought is therefore as follows:

A. Love is this, Strife is that.

B. But alternation has still to be explained.

A 1. For he describes well enough how Love does this, Strife does that.

B 1. Alternation has to be explained in the same way.

From this it is plain that just as A 1 repeats and amplifies A, so B 1 repeats with a variation B:

B. εἰ δὲ προσοριεῖται τὸ ἐν μέρει, λεκτέον ἐφ' ὧν οὕτως.

B 1. τὸ δὲ καὶ δι' ἴσων χρόνων δεῖται λόγου τινός.

The introduction of time in B 1 means little more for Aristotle's argument than the difference between the definition of Love in A and that in A 1:

A. τῆς μὲν τὸ συνάγειν.

A 1. ἔστιν τι ὃ συνάγει τοὺς ἀνθρώπους, ἡ φιλία.

Thus it is clear that for the over-all purpose of Aristotle's argument the significance of the phrase τὸ δὲ καὶ δι' ἴσων χρόνων is not primarily that it introduces time and so leaves us with a fresh point on our hands. The phrase clinches Aristotle's remarks by adding the final and necessary reference to alternation. It is an integral part of Aristotle's argument. Time, as such, is more or less incidental.

The passage quoted above may then be paraphrased as follows, from 252a5:

'No less fantastic is it to say that for there to be movement at one time and no movement at another time is "how things were born to be" and that this we must take as our first principle. That is how Empedocles would appear to talk, when he says that for Love and Strife to influence and move things in turn and for there to be rest in the time between necessarily appertains to things.

10. Those with a single principle, for example Anaxagoras, might perhaps talk in the same vein. But we must insist that there is nothing at all that is natural and according to nature that does not have order. Nature is precisely the cause for all things of order. But the infinite can have no relation with the infinite, whereas all order is a question of relationships. Therefore, for there to be rest for an infinite time and then for things to start moving at any old time, without it making any difference whether they start now rather than earlier, without there being any kind of order about the thing at all, cannot still be said to be something that nature does.

17. For natural events are of two kinds. They may be simple. In that case they will not behave one way at one time and differently at some other time. For example, fire is naturally borne upwards, and that is always true: it is not sometimes so and

sometimes not so. Alternatively, natural events have a regular, but complex character.

19. Now it is because there can be natural events of a regular but complex character that Empedocles on this question is preferable, or anyone else who has held a similar theory. For Empedocles makes the universe stand still and then move again in turn. Now this sort of thing has the beginnings of some sort of order.

22. But all the same, even here, where there is alternation and so order of some kind, it is not enough for the author of such a view simply to affirm that things are as he says they are; he must go on to give the reason for it, the cause. He must not leave it hanging in the air. On the other hand he must not lay down some improbable and unreasonable principle. No: he must bring in induction or demonstration.

25. For remember (μέν) that the principles Empedocles has laid down are not in themselves the causes of alternation. That was not what the nature of Love or of Strife was made out to be. Love was made a cause of attraction and unity. Strife was made a cause of dispersion. If he now goes on (δέ) to add to his definition the fact that the two alternate in power, then instances must be given of such behaviour (so as to provide an argument by induction).

28. He does this well enough in the one case (ὥσπερ). He says that there is something that draws men together, and this is Love, and that enemies repel each other, and the cause of this is Strife. For these are the forces that he claims are at work on a cosmic scale, as well as in human behaviour (καί). He has some right to claim that these forces are at work on a cosmic scale, for in particular instances things do appear to happen this way.

31. But, we must repeat, the fact that besides there being these two principles they also act in turn for equal times (τὸ δὲ καὶ δι' ἴσων χρόνων) calls for some further explanation.'

Thus our preliminary conclusion is that δι' ἴσων χρόνων refers not simply to 'equal times' in some loose and general way, but to *alternation* by equal times, and that this final reference to alternation is an essential part of Aristotle's argument.

From our analysis it now follows that the alternation which Aristotle most likely has in mind is the alternation between rest and movement.

Alternate rest and movement has been throughout the passage Aristotle's chief concern, and the reason for which Empedocles was introduced at all. The sequence of thought is unbroken from the opening description of alternate movement and rest to the ἴσοι χρόνοι in the last sentence.

This is clear if we trace the references to alternation from the end of the passage to the beginning. Τὸ δὲ καὶ δι' ἴσων χρόνων we have shown means essentially the same as εἰ δὲ προσοριεῖται τὸ ἐν μέρει, 27–8. That phrase picks up from ἀλλὰ καὶ τοῦτο δεῖ τὸν λέγοντα μὴ φάναι μόνον, 22–3. This refers to the alternate rest and movement described in the preceding lines, διόπερ βέλτιον ὡς Ἐμπεδοκλῆς . . . ἐν μέρει τὸ πᾶν ἠρεμεῖν καὶ κινεῖσθαι πάλιν, 19–21. That repeats—for there has been a digression on Anaxagoras—the full description of alternate movement and rest given at the beginning of the passage, 7–10.

In the course of the argument Aristotle's references to alternation have become more and more abbreviated:

252a7–10. τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος ὑπάρχει τοῖς πράγμασιν ἐξ ἀνάγκης, ἠρεμεῖν δὲ τὸν μεταξὺ χρόνον.
20–1. ἐν μέρει τὸ πᾶν ἠρεμεῖν καὶ κινεῖσθαι πάλιν.
27–8. εἰ δὲ προσοριεῖται τὸ ἐν μέρει . . .
31. τὸ δὲ καὶ δι' ἴσων χρόνων . . .

But the sequence of thought makes it reasonably clear that throughout the passage the alternation that is referred to remains the same. It is the alternation between rest and movement.

Equal *times*, as we have shown, are more or less incidental to the argument. The introduction of time does not mean that Aristotle has some wholly fresh fact in mind, some new alternation. Time is little more than a convenient way of referring to the alternation that has occupied Aristotle's attention throughout the passage, the alternation between movement and rest.

We may look back at the five times which we said were initially possible, to see how far any other set of them could fit Aristotle's argument.

Equal times for the Sphere and total Strife, or three equal times, increasing Love, the Sphere, increasing Strife, would fairly obviously be irrelevant to the analysis we have given of Aristotle's

argument. We shall argue independently in the next section that in any case both these interpretations would be difficult to harmonize with the structure of Empedocles' cycle and the 'equality' of Love and Strife.

This leaves us with two sets of equal times that certainly found a place in the cycle: the repetition of complete world cycles, and equal times for increasing Love and increasing Strife.

1. Repeated world cycles could possibly be said to take place ἐν μέρει, meaning 'in succession' not 'in alternation'. But repeated world cycles, since each would include both rest and movement, would fairly obviously be alien to the present context.

It is true no doubt that repeated world cycles would also illustrate the need for a supreme cause. But Aristotle never says they do. He has probably taken it for granted that a cause which determined alternate world periods would also legitimately guarantee their endless succession.

2. The minor alternation, increasing Love and increasing Strife, cannot perhaps be wholly excluded, and it may be allowed to cast a faint doubt over the interpretation we have offered.

The minor alternation certainly illustrates the need for a first mover.[1] It is conceivable that at a26–7, τῆς μὲν τὸ συνάγειν, τοῦ δὲ τὸ διακρίνειν, or perhaps more likely at a28–30, ἔστιν τι ὃ συνάγει τοὺς ἀνθρώπους, ἡ φιλία, καὶ φεύγουσιν οἱ ἐχθροὶ ἀλλήλους, Aristotle changes to thinking of increasing Love and increasing Strife as a parallel example of the need for a first cause.

But if Aristotle has changed to thinking of the minor alternation, the shift of ground would be fairly disconcerting. Aristotle would change from interest primarily in alternate movement and rest to interest in alternate periods of movement, and thereby in the need for a first cause which would also be the first cause of alternate movement and rest.

Neither definition seems to justify this change of emphasis. The first, a26–7, is entirely general. The second, a28–30, is likewise most naturally taken as a description of the work of Love and Strife in the world as it is now and at any time, and not specifically as linked to alternating worlds of increasing Love and increasing Strife.

[1] It is so used at *De gen. et corr.* 334a5–9, quoted and discussed on pp. 172–5 below.

There is another point against this interpretation, a slight point. If alternating movements are referred to, then, unless the duration of the Sphere is negligible, which on independent grounds we shall argue was not the case (pp. 69–70), δι' ἴσων χρόνων cannot cover the whole of time. But one would expect it to. When Herodotus, for example, 2. 4, writes that the Greeks introduced an intercalary month διὰ τρίτου ἔτεος, or when Thucydides, 3. 21, has a tower διὰ δέκα ἐπάλξεων, there is clearly no time or space – years or battlements – which is excluded from their calculations. In the same way δι' ἴσων χρόνων would also appear to cover the whole of time. It will do so only if it includes the periods of rest.

Simplicius might perhaps be thought to lend some colour to this rival interpretation. Simplicius consistently takes 'equal time' as an example of alternation:

1185. 30–1. ἡ γὰρ φιλία καὶ τὸ νεῖκος, οὐκ εἰσὶν ἀρχαὶ καὶ αἰτίαι τοῦ παρὰ μέρος καὶ ἐν ἴσωι χρόνωι κρατεῖν καὶ κινεῖν.

32–4. τῆς μὲν φιλίας ἴδιόν ἐστι τὸ συνάγειν εἰς ἓν τὰ διηρημένα, τοῦ δὲ νείκους τὸ διακρίνειν καὶ χωρίζειν. τοῦ δὲ ἐν μέρει καὶ ἐν ἴσωι χρόνωι ἄλλο ἂν εἴη τὸ αἴτιον.

1186. 5–6. ἔδει οὖν καὶ ἐπὶ τοῦ ἐν μέρει καὶ δι' ἴσου ἐν τῶι παντὶ κρατεῖν ἀπ' ἄλλου τινὸς τὴν πίστιν κομίζειν.

In the first quotation Simplicius attaches to equal time the phrase κρατεῖν καὶ κινεῖν, which in Aristotle represents the *minor* alternation.[1]

However, Simplicius' behaviour at this point is not significant. He does, it is true, distinguish different levels of the activity of Love and Strife. Thus, in the earlier discussion of rest and movement, he sees the contrast between Love and Strife as representing a contrast between (1) a world of forms and the sensible world, (2) the heavenly and the sublunary regions, and (3) the local and temporary prevalence of the forces of unification and separation within the sublunary world.[2] We might perhaps say that (1) represents the major alternation, while (3) represents the minor alternation. But even so, Simplicius is not concerned with that distinction

[1] 252a7–8. For the possible origin of the expression see pp. 319–20 below.
[2] 1123. 25–1124. 9. Cf. pp. 28 above and 99–101 below.

in his discussion of equal time, 1185. 18–1186. 35. Indeed he concludes his account in a way that happily merges the two alternations, 1186. 32–5: ἀμφοῖν δὲ ἀεὶ ὄντων (the intelligible and the sensible worlds) τὴν κατὰ χρόνον μεταβολὴν εἰς ἔνδειξιν ἐλάμβανον (Anaxagoras and Empedocles) τῆς τάξεως αὐτῶν καὶ τῆς τοῦ αἰσθητοῦ γενέσεως ἀπὸ τοῦ νοητοῦ, Ἐμπεδοκλῆς δὲ καὶ τῆς τοῦ αἰσθητοῦ πρὸς τὸ νοητὸν ἐπιστροφῆς.

We conclude therefore that by far the most natural, though perhaps not the only conceivable, interpretation of δι' ἴσων χρόνων, if that phrase is taken in its whole context, is that it refers to equal times for rest and movement.

Since Aristotle knew that the Sphere was the only time of rest (pp. 7–19 above), this will mean that the Sphere lasted for as long as the whole world of plurality and movement.

OTHER POSSIBILITIES

We have argued that Aristotle thinks of the Sphere as lasting for as long as the world of plurality and movement. As briefly as possible, we consider here what intrinsic plausibility there could be, apart from Aristotle's evidence, in other possible durations of the Sphere. These are:

1. the Sphere was equal to total Strife and so instantaneous;
2. it was equal to increasing Love or Strife;
3. its duration was left unspecified.

1. An instantaneous Sphere is improbable in several ways, despite the assertions of some modern scholars.[1]

Does the Sphere rejoice in its rest for a moment only?[2] Would Aristotle have made so much of movement and rest, if the only time of rest were a momentary apparition of the Sphere? Would Plato have said of Empedocles' world that it was 'at times one and at times many', if the duration of the one was insignificant compared to the duration of the many?[3] Could Simplicius and other Platonists have identified a merely transitional Sphere with the world of intelligible realities?[4] Finally, does a transitory Sphere do

[1] References on pp. 55–6 above.
[2] Fr. 27. 4=28. 2. Or in its rest and unity, see pp. 22–5 above.
[3] *Sophist* 242 D–243 A, cf. pp. 93–5 and 177–8 below.
[4] For this Platonizing interpretation, see pp. 99–101 below.

justice to Parmenides' influence, to the theory that Empedocles' answer to Parmenides was to make the Sphere and the world of appearances succeed each other in endless alternation?[1]

2. If the Sphere equalled increasing Love or Strife, there would be three equal times, since fr. 35 shows that total Strife was instantaneous (see pp. 58–9 above).

The difficulty here lies in accommodating three equal times to Empedocles' demand that Love and Strife, as well as the other elements, should be equal in all things, fr. 17. 27. This, it is true, is a fairly general statement. But equality was important for Empedocles and for the Presocratics generally.[2] Given this liking for equality, it would be decidedly odd if Love and Strife had not been made in some way equal in their lengths of rule. But equal they can hardly have been, if there are three equal times to dispose of.

Love cannot have only the Sphere, for that would give to Strife too great a preponderance. She cannot have the Sphere plus the whole of increasing Love, for that would be unfair to Strife. Unless one of our three times is to be neutral in some way, she must have the Sphere plus half a time more or its equivalent.

This in itself raises a difficulty. For how can part of a period of which the other part belongs to Strife be comparable with the Sphere, where things are perfectly at one? Love's share will have to be something of a job lot.

Still, we might try giving Love the second half of the period of increasing unity. But if the thesis here is correct, events in the two worlds are no more than repeated in the reverse direction. The second half of increasing Love will differ from the first half of increasing Strife in no more than the direction of change. Yet one we shall have to say belongs to Love and the other to Strife.

[1] For this interpretation, see pp. 239–44 below.

[2] Vlastos brings this out well in his article, 'Equality and justice in early Greek cosmologies', *C.P.* 42 (1947), 156–78. He relies primarily on fr. 17. To this should be added especially Theophrastus, *De sens.* 11: an equal mixture of the elements makes people φρονιμωτάτους εἶναι καὶ κατὰ τὰς αἰσθήσεις ἀκριβεστάτους, cf. Solmsen, 'Tissues and the soul', *P.R.* 59 (1950), 437–9. Similarly, the best eyes are made from an equal mixture of fire and water, Theophr. *De sens.* 8.

To avoid this we might give Love a quarter of each world, the quarter nearest the Sphere, in one of which or in each of which there was perhaps a golden age (cf. pp. 76–7 below).

But this is ruled out by the description in frr. 30 and 31 of how Strife rushes forward to seize its honours, ἐς τιμάς τ' ἀνόρουσε, and thus apparently brings to an end the life of the Sphere. From those fragments it looks as though Strife's honours must begin as soon as Strife enters the Sphere, and separation and movement begin.

Love therefore cannot plausibly be given the Sphere alone, nor the Sphere plus increasing Love, nor the Sphere plus half increasing Love, nor the Sphere plus a quarter of increasing Love and a quarter of increasing Strife. But there is no other simple way in which we could hope to divide out three equal periods between two equal powers. Our only recourse would be to reckon Love's period of total rule as equivalent to Strife's having twice that time of partial rule. But this would no longer be an obvious instance of equality.

3. Was the duration of the Sphere perhaps left unspecified, as Zeller and Winnefeld thought (cf. p. 55 above)?

This would have a parallel in Stoic thought. The Stoics apparently glossed over the time of the occurrence of their conflagration, and thereby the length of its duration compared to the world of plurality, with such phrases as κατά τινας εἱμαρμένους χρόνους[1] or κατὰ χρόνων ποιὰς περιόδους[2] or ἐν τοῖς καθήκουσι χρόνοις.[3]

An unspecified duration for the Sphere would also fit in well with such general characterizations of Empedocles as that given by Millerd: 'Imaginative vividness took hold of him with more persuasiveness than did logical consistency, and he inevitably baffles minds not constituted like his own. The important thing in understanding him is to stop thinking at the right moment. On almost every problem his thought, when pushed beyond a certain point, presents contradictions and absurdities; up to that point it is singularly suggestive and clear.'[4] This attitude colours a good deal of scholarship on Empedocles. Robin, for example, concludes,

[1] Aristocles, *ap.* Eus. *Praep. evang.* 15. 14. 2 on Zeno.
[2] Diog. Laert. 7. 137.
[3] Stob. *Ecl.* 1. 17. 3 on Cleanthes.
[4] (1908), pp. 21–2.

'synthèse hésitante et confuse. . . beaucoup trop passionnée pour être assez systématique'.[1] Diels speaks of the 'Trivialität' of Empedocles' system.[2] Perhaps the most extreme critic is Kafka, who speaks of Empedocles' aim as merely, 'eine Reihe genialer Intuitionen mit dichterischer Freiheit zu einer dramatischen Darstellung des Weltgeschehens zu verknüpfen'.[3] Kafka's judgment looks back ultimately to that of Zeller[4] and of Steinhart.[5] There are similar remarks in Gilbert.[6]

It is true of course that there are ideas where Empedocles is still stumbling in his speech, as Aristotle would say.[7] But, hostile though his criticisms sometimes are, Aristotle would by no means wholeheartedly endorse the adverse opinions of Empedocles that have just been quoted. For, surprising as it may sound nowadays, Aristotle probably regarded Empedocles, taken all in all, as the most successful of the Presocratics. It is true that Anaxagoras had the honour of first introducing a universal moving cause in a way that was definitely recognizable[8] and that Parmenides made the greatest advance towards the recognition of non-sensible being.[9] But to Empedocles Aristotle devotes more time and space than to any other thinker except Plato.[10] Over Parmenides, Empedocles had the advantage of a fully developed physical system. Compared with Anaxagoras, admittedly Empedocles is often given more attention simply because what he says can be refuted in so many different ways. But there can be no doubt that Aristotle had on the whole a higher opinion of Empedocles than of Anaxagoras. He several times expresses a preference for Empedocles against

[1] (1923), p. 134.
[2] 'Über Leukipp und Demokrit', *Verhandlungen der 35 Versammlung Deutscher Philologen und Schulmänner in Stettin* (Leipzig, 1881), p. 104 n. 28.
[3] (1923), p. 203. This is repeated almost word for word from Kafka's slightly earlier work, *Die Vorsokratiker, Geschichte der Philosophie in Einzeldarstellungen*, Abteilung 2, *Die Philosophie des Abendlandes im Altertum*, Band 6 (München, 1921), p. 103.
[4] ZN, pp. 1036–8, cf. pp. 1259–62.
[5] Article on Empedocles in Ersch and Gruber's *Allgemeine Encyklopädie der Wissenschaften und Kunste* etc., Theil 34 (Leipzig, 1840), p. 95a.
[6] (1911), p. 224.
[7] *Met.* 985a5, 993a15–18.
[8] *Met.* 984b15–20.
[9] *Met.* 986b18–34, a passage which Simplicius is always glad to refer to.
[10] This may be checked from Bonitz's index.

Anaxagoras,[1] and only once for Anaxagoras as against Empedocles.[2] The only rival for Aristotle's esteem is Democritus. But Democritus lost marks heavily over the void and the lack of a moving cause. What we might think of as Empedocles' most hopeless absurdity, the endless alternation of the Sphere and the many and of increasing Love and increasing Strife, was a recommendation to Aristotle. Wrong though he thought it to be, at least it gave the sensible world some status as against Parmenides, and avoided the much greater impossibilities of Anaxagoras' moment of 'creation' and Democritus' innumerable worlds in infinite space. The permanence of the elements, the regularity of change almost made Empedocles' world eternal.[3]

It is true that sometimes Aristotle criticizes Empedocles bitterly. Ἔδει οὖν, he says of Empedocles' failure to specify sufficiently the functions of Love and Strife, ἢ ὁρίσασθαι ἢ ὑποθέσθαι ἢ ἀποδεῖξαι, ἢ ἀκριβῶς ἢ μαλακῶς ἢ ἄλλως γέ πως.[4] The note of exasperation is obvious; and the whole of this chapter is a catalogue of Empedocles' worst failings. But this is quite different from his calling Melissus, for example, φορτικός and μικρὸν ἀγροικότερος.[5] It is rather that Aristotle is sometimes led to a kind of enraged disappointment at seeing good ideas only half brought out. It is significant that on one particularly difficult point, the difference between what is eternal and what is changing, Aristotle turns to Empedocles with the remark that Empedocles if anyone you would most expect to be consistent.[6]

Aristotle's attitude to Empedocles should make us hesitate before accepting modern assessments of the kind we have quoted from Millerd and Robin and Kafka. The truth is that we should distinguish areas where Empedocles' thought is likely to be thoroughgoing and consistent from those where it is not. We may allow that Empedocles shows a certain *naïveté*, compared with the

[1] *Phys.* 188a17–18, 189a15–17, 252a5–22; *De caelo* 302a28–b9, 302b20–30; *Meteor.* 369b11–370a10.

[2] *De caelo* 301a11–20 quoted above, p. 10. I do no more than cite the principal passages here, as I have discussed in more detail Aristotle's preference for Empedocles over Anaxagoras in a forthcoming study in the *J.H.S.*

[3] *De caelo* 279b14–17, 280a11–23.

[4] *De gen. et corr.* 333b24–6.

[5] *Phys.* 185a10; *Met.* 986b26–7.

[6] *Met.* 1000a18–26, b17–20.

Atomists and later thinkers, on such questions as the void, imperceptible and indivisible particles, chance and design, the true nature of unity. But this is not at all to say that 'on almost *every* problem his thought, when pushed beyond a certain point, presents contradictions and absurdities'. What Millerd says is true of those problems whose difficulties in Empedocles' day were implicit only, problems which were in themselves of a kind to require further analysis. To the examples mentioned we may add the notable example of the distinction between material and abstract or spiritual modes of being. But there are other problems where a certain primitiveness of thought and a lack of consciously abstract thinking may have encouraged clarity of vision. Such are the spatial arrangements of the heavens, mechanical processes like breathing and vision, and, in my opinion, the main spatial and temporal features of the cosmic cycle.[1]

These more general considerations apart, there are reasons to suppose that the question of time will have received careful attention from Empedocles.

Time was significant for Anaximander—κατὰ τὴν τοῦ χρόνου τάξιν—and for Pherecydes, fr. 1. The Pythagoreans also seem to have given time a prominent place in their system.[2] Most notably, Parmenides demanded of all would-be cosmogonists, fr. 8. 9–10,

τί δ' ἄν μιν καὶ χρέος ὤρσεν
ὕστερον ἢ πρόσθεν, τοῦ μηδενὸς ἀρξάμενον, φῦν;

Parmenides' question Anaxagoras probably thought he had answered by the introduction of νοῦς. Νοῦς presumably started the

[1] It may be objected that the difficulty of reconciling pores with the apparent denial of void in frr. 13 and 14 casts discredit on Empedocles' powers of visually imaginative perception. But Empedocles' pores may have been simply 'hollows', cf. Arist. *De gen. anim.* 747a34–b10, perpetually filled either with their own effluences, or with the effluences of other things. And the explicit denial of void may apply only to the Sphere: this at least is the reference of fr. 13, see *De MXG* 976b25–7.

On the other hand, if Empedocles' powers of perception were blunted here, it may reasonably be claimed that this was the result of a logical difficulty. Before the Atomists, no one distinguished space from non-being. There was no such logical difficulty present to warp Empedocles' clear visualization of the spatial and temporal outlines of the cycle.

[2] Aristotle *ap.* Stob. *Ecl.* 1. 18. 1c = fr. 201 Rose (DK 58B30). For a defence and explanation of χρόνος in this passage see Guthrie (1962), pp. 336–40.

world when it wanted to, when it thought best. Empedocles had another answer: alternate rule, sealed by the broad oath of necessity.[1] Only a regular alternation, with parts of specified duration, will have been able, one suspects, to free the mind of that dangerous ὕστερον ἢ πρόσθεν. A fixed, and so probably a specific, limit will have had to be imposed on something so potentially fatal to the cyclic system as the complete dominion of one power.

It is significant that Aristotle criticizes Anaxagoras for his failure—so Aristotle sees it—to answer what is in effect precisely this question of Parmenides, *Phys.* 252a14–16: τὸ δ' ἄπειρον χρόνον ἠρεμεῖν, εἶτα κινηθῆναί ποτε, τούτου δὲ μηδεμίαν εἶναι διαφοράν, ὅτι νῦν μᾶλλον ἢ πρότερον, μηδ' αὖ τινὰ τάξιν ἔχειν, οὐκέτι φύσεως ἔργον. But there is no criticism of Empedocles on this score. Of course Empedocles escapes because of alternation. But it must be a regular alternation, 252a17–20: ἢ γὰρ ἁπλῶς ἔχει τὸ φύσει . . . ἢ λόγον ἔχει τὸ μὴ ἁπλοῦν. διόπερ βέλτιον ὡς Ἐμπεδοκλῆς. If Empedocles' alternation had been irregular to the extent of the time sequence having been left undefined, one suspects that Aristotle would have been less ready to grant that it had a λόγος, even a λόγος μὴ ἁπλοῦς.

There is also Empedocles' own language. Fr. 30, discussed more fully below (pp. 80–5), appears to speak of a definite time interval for the Sphere,

> τελειομένοιο χρόνοιο,
> ὅς σφιν ἀμοιβαῖος πλατέος παρ' ἐλήλαται ὅρκου.

Of course, this may be like the Stoics' language: a phrase that is apparently precise used to cover a time that was never in fact specified. But such a subterfuge may have satisfied a later age, with other preoccupations. It is not characteristic of Empedocles' cosmic thinking.

There is therefore no good reason to suppose that Empedocles will have failed to specify the duration of the Sphere. On the contrary, there is reason to suppose that time will have been given special consideration.

[1] If we may so correlate frr. 30 and 115. 1, cf. Arist. *Phys.* 252a5–10; *Met.* 1000b12–17.

Conclusion

Thus we arrive at the same conclusion from two paths. Aristotle almost certainly implies that the time of movement equalled the time of rest. Any other duration for the Sphere is difficult to reconcile with the inner needs of Empedocles' system.

THE BALANCE OF THE CYCLE

But do equal periods for rest and movement satisfy the inner needs of Empedocles' system? Surely they only occasion fresh difficulties?

Our aim has been to keep Love and Strife 'equal in all things', including the length of their rule. But the cycle now appears to be balanced in favour of Love. For half the time Love in the Sphere is supreme and Strife dormant, while for the other half both Love and Strife are active, and Strife has no more than a moment or two when the fullness of its power is comparable to the fullness of Love's power in the Sphere.

From our reconstruction therefore it looks as though the whole world of plurality and movement will have to belong to Strife in some sense, in order to balance the time of Love's power in the Sphere.

But if the whole world of plurality and movement 'belongs' to Strife, where can we put the golden age? Possibly the golden age is intended to be a mythical counterpart of the Sphere, as Cornford thought.[1] If this is not so, then presumably it must come in the period immediately before or after the Sphere, or in both.[2] But how can a time when 'there burned the flame of loving kindness', fr. 130, and when 'Cypris alone was queen', fr. 128, have belonged in any sense to Strife?

An immediate answer to this objection is that even in the golden age, if we take the description literally, there were men and women,

[1] *From religion to philosophy, a study in the origins of western speculation* (London, 1912), pp. 234–6, and in his (unpublished) lecture notes.

[2] The golden age could come immediately *before* the Sphere because the world of increasing Love, like the golden age, was thought of as in the past. For the golden age note the past tenses of frr. 128–30. For the world of increasing Love note Aristotle, *De gen. et corr.* 334a5–7, καὶ πρότερον ἐπὶ τῆς φιλίας: see further pp. 174–5 below. Robin (1923), p. 134, quite plausibly puts the golden age exclusively in the period of increasing Love.

fr. 128. 9, and so there is separation to some degree and Strife must still to some extent be active. Even at the time of the whole-natured creatures, who have '(probably equal) shares of fire and water', fr. 62. 5, and who are therefore, we shall argue (pp. 205–9), more harmonious creatures than we are, there is some separation (they are made by κρινόμενον πῦρ which is θέλον πρὸς ὁμοῖον ἱκέσθαι, fr. 62. 2 and 6), and so room for Strife.

Thus the fact that at times other than the Sphere there was always to some extent movement and separation must, we suggest, have seemed to Empedocles more important than that at times the separation was far from complete and, as we have argued in chapter 3, the rate of movement a slow one. Any separation and any movement will have 'belonged' to Strife in the way that the Sphere 'belongs' to Love.

A more complete answer is possible if we are allowed to speculate on Empedocles' conception of change as follows.

From his system, as it has been reconstructed here, it appears that Empedocles saw movement and change as a process necessarily directed to an end; not as a permanent condition of things, as in Heraclitus' world; nor as generated but interminable, as for Anaxagoras. The reason for this will perhaps have been Empedocles' association of change and movement with mixing and separation.

Parmenides had rejected change and movement as equally implicated in the illusion of genesis, fr. 8. 40–1:

> γίγνεσθαί τε καὶ ὄλλυσθαι, εἶναί τε καὶ οὐχί,
> καὶ τόπον ἀλλάσσειν διά τε χρόα φανὸν ἀμείβειν.

Empedocles in effect reinstated change by means of movement, fr. 17. 34–5:

> ἀλλ' αὐτὰ ἔστιν ταῦτα, δι' ἀλλήλων δὲ θέοντα
> γίγνεται ἄλλοτε ἄλλα καὶ ἠνεκὲς αἰὲν ὁμοῖα.

Not however by means of movement simply as such, but by means of movement specified as mixing and separation, frr. 9 and 22.

Now separation for Empedocles is a process that must have a term. Separation is complete when each of the four elements has

been isolated (cf. pp. 146–9 below). Just the opposite is true for Anaxagoras, with his myriad elements. For Anaxagoras separation, once begun, apparently continues indefinitely.[1]

But if separation for Empedocles is a process that must end, then the same, we suggest, may have been true of movement and change. If movement continues, then separation would have to continue. But separation cannot continue beyond a certain point. Movement too therefore will be a limited process.

But that is not all. We might imagine that once separation is complete movement could cease and the separated elements be at rest. But this would contravene the 'law' which we worked out earlier (pp. 38–45), whereby only unified things are at rest and a plurality is moving. Movement will have been felt as necessary somehow to keep the elements apart.

Since therefore the fully separated elements cannot continue in movement (since they cannot become *more* separated) nor be at rest (since only a unity can be at rest), the opposite process, that of mixing, must intervene. Mixture too leads to a term, complete unity. But here there is no difficulty. Mixed, unified things are at rest, and rest, unlike movement, is essentially stable. Rest does not contain within itself the seed of its own impermanence, as does movement. Rest as such would happily continue for ever. It will stop only if it is broken in upon by a force from without.

At this point there is some evidence for what must otherwise be speculation. A force apart from the two gods, a broad oath, *was* used for the change over from rest to movement, as we see in fr. 30.[2] But to judge from fr. 35 it was not needed to engineer the change from increasing separation to increasing mixture.

This would be explained by our argument. Rest is essentially stable and enduring. It must therefore be interrupted by a third force: a broad oath that fixes the time for Strife's invasion. But total separation is not a condition that can endure. Consequently, once total separation has been achieved, movement must recoil

[1] Fr. 12, DK 2. 38. 8. The contrary evidence of Aetius, 2. 4. 6 (DK 59 A 65), that Anaxagoras thought the world perishable, is outweighed by Aristotle, *Phys.* 252 a 13, and Simplicius, *Phys.* 154. 29–31. Eudemus shows however that Anaxagoras was not wholly explicit, *ap.* Simpl. *Phys.* 1185. 9–15 = fr. 111 Wehrli, as can be seen indeed from fr. 12.

[2] Cf. Arist. *Met.* 1000 b 12–17 quoted below, p. 84.

upon itself and return to the state of rest from where it began. At the middle change-over therefore, from increasing separation to increasing mixture, there is no need for a third force to engineer the world's return to the Sphere. There is no need for the broad oath.

If this line of reasoning represents at all the workings of Empedocles' mind, then the apparent imbalance of the cycle in favour of Love can be explained to some extent (even apart from the obvious need to have Love at work in the world as we know it, the world which nonetheless 'belongs' to Strife).

Love rules a state. Strife rules a process. We do not give each god a period of total power and a period of increasing power, as we should do if there were four equal periods. The arrangement is simpler. Love is given the time of rest and unity. Strife is given the whole wave of separation and movement, any separation, any movement.

For there is no such thing as total *and enduring* Strife in the way that there is total and enduring Love. Love's rule is total and *enduring*, precisely because Love is the principle of peace (cf. fr. 147), rest and changelessness. But total and enduring Strife is impossible, because there can be no movement that is not directed movement, no separation beyond the point where each element has been isolated. Thus movement is not for Empedocles something that can remain at a constant pitch for a great length of time; for that is precisely a characteristic of rest. Movement is of its nature a process that must rise and fall.

Because Strife's rule is a process, Love must also be active in it. Strife's rule is a battle, and in a battle there must be two contestants. Did Love not resist Strife through the elements, then complete separation would follow at once, and Strife's rule be shortened. Love's activity serves to prolong the separating of the elements, and equally gradual must be the process whereby the elements return to full unity.

Thus Strife's share is essentially a process, a battle, a time of change and conflict, a time of increase and decline, where there is no place for victory and so for peace and permanence.

Two cautions are necessary.

First, this analysis is in no way inconsistent with Aristotle's use of the phrase ἐπὶ τῆς φιλίας or φιλότητος to describe part of the

world which we have said 'belongs' to Strife. We shall study more fully in a moment (pp. 98–9 and 169–77) the passages where Aristotle shows himself aware that there were two alternations, a (major) alternation of rest and movement, and a (minor) alternation of movement dominated by Strife's increase and movement dominated by Love's increase. Aristotle's phrase ἐπὶ τῆς φιλίας or φιλότητος describes part of the minor alternation, as we shall see. The present analysis is concerned primarily with the major alternation. The purpose of the present analysis is to explain how movement dominated by Love *as well as* movement dominated by Strife *both* in a sense 'belong' to Strife, as the author of movement and plurality, in the same way that the Sphere may be said to 'belong' to Love, as the author of unity and rest. The fact that the half of the major alternation which 'belongs' to Strife contains two opposed movements, one of which is dominated by increasing Love, and which Aristotle describes therefore as ἐπὶ τῆς φιλίας, we have tried to explain in terms of Strife's rule as a 'process', with a 'rise' and 'fall' of movement, and an 'increase' and 'decline' of Strife's power.

Secondly, it must be emphasized that this attempt to rationalize, as it were, our equal periods of rest and movement can be only conjectural. It aims at laying bare Empedocles' reflections on the nature of movement and rest and their place in the cosmic cycle: reflections that may have been only half conscious, and that would not have been expressed openly in the poem.

FRAGMENT 30

We hope to have shown that equal periods of rest and movement are implied by Aristotle in the *Physics*, and at the same time provide on general grounds a reasonably coherent formation of the cycle. We turn now to the only occasion in the physical poem where Empedocles himself speaks of a definite time, fr. 30:[1]

> αὐτὰρ ἐπεὶ μέγα Νεῖκος ἐνἰμμελέεσσιν ἐθρέφθη
> ἐς τιμάς τ' ἀνόρουσε τελειομένοιο χρόνοιο,
> ὅς σφιν ἀμοιβαῖος πλατέος παρ' ἐλήλαται ὅρκου.

[1] A definite time, as distinct from the phrase περιπλομένοιο χρόνοιο fr. 17. 29, which is no more than an equivalent of περιπλομένοιο κύκλοιο fr. 26. 1.

If we try to discover exactly what these words mean, it appears likely that they refer to equal periods of rest and movement.[1]

When does Strife rush forward to seize its honours: at the time of its total power, or when it first invades the Sphere?

From the way the verses are introduced by Aristotle and Simplicius it is reasonably clear that they describe Strife's disruption of the Sphere.

1. Aristotle quotes the lines with the following prefatory remark, 1000b9–13:

ἀλλ' ὅθεν δὴ ὁ λόγος, τοῦτό γε φανερόν, ὅτι συμβαίνει αὐτῶι τὸ νεῖκος μηθὲν μᾶλλον φθορᾶς ἢ τοῦ εἶναι αἴτιον· ὁμοίως δ' οὐδ' ἡ φιλότης τοῦ εἶναι, συνάγουσα γὰρ εἰς τὸ ἓν φθείρει τὰ ἄλλα. καὶ ἅμα δὲ αὐτῆς τῆς μεταβολῆς αἴτιον οὐθὲν λέγει ἀλλ' ἢ ὅτι οὕτως πέφυκεν.

Aristotle's previous λόγος is that Strife is cause not only of destruction but of genesis, 1000a24–b3. After some incidental criticisms, Aristotle now repeats the point, and adds the corollary: Love is cause not only of genesis but of destruction. His final criticism is that no cause has been provided for the change-over (μεταβολή) from the action of one god to that of the other.

Strictly, μεταβολή is ambiguous, as between the change-over from increasing Strife to increasing Love *or* the change-over from increasing Love to increasing Strife. But the context makes it clear that the change-over Aristotle more likely has in mind is the latter, the change-over from increasing Love to increasing Strife. For the paradox in Aristotle's eyes is not that Love causes genesis and that Strife causes destruction. His attention therefore is not likely to be directed to the destruction of the world by increasing Strife and its rebirth under increasing Love, i.e. to the change-over of total Strife. The paradox in Aristotle's eyes is that Love causes destruction and that Strife causes genesis. His attention therefore is likely to be fixed on the destruction of the world by increasing Love and the rebirth of the world under increasing Strife, i.e. on what we have called the change-over of total Love. The verses that he quotes therefore will be more likely to describe the disruption of the Sphere by Strife, at the end of the period of total Love.

[1] The interpretation of the first line is discussed separately, note 5, pp. 274–5 below.

2. We have seen that the μεταβολή of total Strife is of little significance to Simplicius (pp. 28–9). His remarks in introducing fr. 30 make it clear that he associates the fragment with the μεταβολή from total Love to increasing Strife. He prefaces his quotation of fr. 30 with the following words, *Phys.* 1184. 11–13, immediately after quoting the opening two lines of fr. 115: διὰ γὰρ τὴν ἀνάγκην καὶ τοὺς ὅρκους τούτους ἑκάτερον (i.e. Love and Strife) παρὰ μέρος ἐπικρατεῖν φησί. λέγει δὲ καὶ ταῦτα Ἐμπεδοκλῆς ἐπὶ τῆς τοῦ νείκους ἐπικρατείας. A few lines before this Simplicius has employed a parallel expression for the Sphere, 1183. 28–9, ἐν τῇι τῆς φιλίας ἐπικρατείαι. He has also made it clear that Strife's ἐπικράτεια begins with the disruption of the Sphere, 1184. 2–3: ἀρξαμένου δὲ πάλιν τοῦ νείκους ἐπικρατεῖν τότε πάλιν κίνησις ἐν τῶι Σφαίρωι γίνεται.

We conclude therefore, from the evidence of Aristotle and Simplicius, that fr. 30 describes Strife's disruption of the Sphere.

One period of time is coming to an end, τελειομένοιο χρόνοιο. It probably includes the Sphere, and the whole of it; for it is difficult to see how the life of the Sphere could be subdivided in any meaningful way. But it is unlikely to be more than the Sphere, unless we think of the Sphere as of minimal duration, which we have argued was unlikely to be the case (pp. 69–70).

Thus the time that has come to an end is probably the life of the Sphere.

The time that has come to an end is ἀμοιβαῖος for Strife's honours, or for Love and Strife.[1] Does this mean only that there is a time which Strife has sworn to give, and Love to receive and then demand no more? This is not the usual meaning of ἀμοιβαῖος. The word is not used of a one-way transfer: of a single article that is given by one and taken by another. Ἀμοιβαῖα are two things: one is given in exchange for the other. Καὶ μή τις ἀμοιβαίη χάρις ἔστω, says Aphrodite, waiving her right to a favour in return for the one she is bestowing.[2] So here, ἀμοιβαῖος should properly imply two times: the time that Strife has given to Love in exchange for the time that Love must now yield to Strife.

[1] The precise reference of σφιν in line 3 is considered below, p. 275. It is not crucial to the present argument.

[2] Apoll. Rhod. 3. 82.

What is the rate of exchange? The simplest and most obvious rate would be for the one time to be equal to the other. There will then be an equal time for Strife's honours as for Love's honours, or an equal time for Strife as for Love.

Thus the life of the Sphere has come to an end, and now Strife claims a time of equal duration.

When will this second time come to an end? There are two obvious points, and only two: the height of Strife's power, or the reabsorption of the elements into the Sphere. But if we suppose that the second time is equal to the first, and comes to an end with total Strife, then we are back in the difficulties of three equal periods (cf. pp. 70–1 above). The alternative is much simpler: that the second time is equal to the first and lasts for the whole period of movement until the re-establishment of the Sphere, when Love's time begins again.

We are reminded that Strife's work is to separate; and that in the eyes of the fifth century separation and plurality demand movement. It looks as though Strife's 'honours', that begin as soon as the Sphere is disrupted, continue for as long as there is movement and separation in the world, at least in the sense that its 'honours' are not wholly relinquished until it has been wholly excluded from the elements.

We may also observe that in this way we have another example of Empedocles' use of equality, a proportion whose peculiar beauty in the eyes of the Presocratics and for Empedocles in particular has been illustrated by Vlastos.[1]

Probably it never crossed Empedocles' mind that an alternation, rule 'in turn', could have anything but halves. Indeed Vlastos writes of ἀμοιβαῖος χρόνος, though without bringing out the implications for the structure of the cosmic cycle: '"Alternate time" specifies what kind of justice this is: the *equalitarian* justice of rotation of office' (my italics).[2] Equilitarian justice will most likely be based on an equal length of rule.

The question now arises: are these verses the source of Aristotle's reference to ἴσοι χρόνοι in the *Physics*?

[1] In the article already cited, p. 70 n. 2, from 1947, drawing principally on fr. 17. 27–9.

[2] (1947), p. 161.

It is probable that they were one source, perhaps the only source.[1] For the context in which Aristotle quotes these verses in the *Metaphysics* gives an exact summary of the criticisms from the passage of the *Physics* which we have already analysed.

In the *Metaphysics*, 1000b9–17, Aristotle writes:

ἀλλ' ὅθεν δὴ ὁ λόγος, τοῦτό γε φανερόν, ὅτι συμβαίνει αὐτῶι τὸ νεῖκος μηθὲν μᾶλλον φθορᾶς ἢ τοῦ εἶναι αἴτιον· ὁμοίως δ' οὐδ' ἡ φιλότης τοῦ εἶναι, συνάγουσα γὰρ εἰς τὸ ἓν φθείρει τὰ ἄλλα. καὶ ἅμα δὲ αὐτῆς τῆς μεταβολῆς αἴτιον οὐθὲν λέγει ἀλλ' ἢ ὅτι οὕτως πέφυκεν· (He quotes fr. 30) ὡς ἀναγκαῖον μὲν ὂν μεταβάλλειν· αἰτίαν δὲ τῆς ἀνάγκης οὐδεμίαν δηλοῖ.

With ἀλλ' ἢ ὅτι οὕτως πέφυκεν we may compare *Phys.* 252a5–7, ὁμοίως δὲ καὶ τὸ λέγειν ὅτι πέφυκεν οὕτως καὶ ταύτην δεῖ νομίζειν εἶναι ἀρχήν. With ὡς ἀναγκαῖον μὲν ὂν μεταβάλλειν we may compare the continuation of the same sentence, ὡς τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος ὑπάρχει τοῖς πράγμασιν ἐξ ἀνάγκης, ἠρεμεῖν δὲ τὸν μεταξὺ χρόνον. Finally, αἰτίαν δὲ τῆς ἀνάγκης οὐδεμίαν δηλοῖ is the whole burden of the criticism that follows. We may quote 252a22–4, ἀλλὰ καὶ τοῦτο δεῖ τὸν λέγοντα μὴ φάναι μόνον, ἀλλὰ καὶ τὴν αἰτίαν αὐτοῦ λέγειν, καὶ μὴ τίθεσθαι μηδέν etc.

This exact parallelism makes it likely that the verses which Aristotle quotes in the *Metaphysics* were in his mind when he wrote the passage in the *Physics*.

It may seem surprising after saying that Aristotle is our best evidence for the duration of the Sphere (p. 60), and after treating his remarks with such circumspection, now to admit that we may have before us the verses from which Aristotle's evidence is, at least in part, derived. If we have the original, why so much concern for Aristotle?

Fragment 30 out of its context is far from conclusive. We cannot be certain that the time that has come to an end is the Sphere and no more; nor when the time that is now beginning will end; nor precisely what ἀμοιβαῖος implies. But for Aristotle the context and the rest of the poem may have made these points tolerably clear.

[1] Cf. Zeller, ZN, p. 968 n. 2.

We cannot therefore dispense with Aristotle, even though it seems likely enough that the lines before us—out of their context now, and therefore sadly drained of their meaning—were in fact the source of Aristotle's statement that rest and movement lasted δι' ἴσων χρόνων.

THIRTY THOUSAND SEASONS

There is one occasion when in the religious poem Empedocles mentions a specific time. The *daimones* who have stained their limbs with blood are doomed to wander apart from the gods for thirty thousand seasons, τρὶς μυρίας ὥρας, fr. 115. 6. There are three questions here. 1. What is a ὥρα? 2. Are thirty thousand ὥραι a literally specific time, or a conventional way of expressing a vast duration? 3. Can we relate this time to the cosmic cycle?

1. What is a ὥρα? Karsten supposes that Empedocles' ὥραι are years.[1] Karsten is followed by Mullach[2] and Rohde.[3] Alternatively, it has been argued that there are three ὥραι to a year, as in Homer and Hesiod (see L.S.J., *s.v.*); and therefore that the time intended is ten thousand years. This view was put forward initially by Bakhuizen van den Brink.[4] Brink's view seems to be preferred by Zeller[5] and is followed by Dieterich[6] and Gomperz.[7]

The meaning of 'year' for ὥρα is questionable on two grounds.

(i) Ἔωρα on its own does not appear to mean 'year' elsewhere. Ἔωρος in this sense, cited by Mullach from the Suda (see also L.S.J., *s.v.*), is irrelevant. The sense noted for ὥρα by L.S.J., '*the year* generally', comprises some idiomatic expressions where ὥρα is used in the plural, and a citation each from Herodotus and Demosthenes. In Herodotus, 8. 12, ἦν μὲν τῆς ὥρης μέσον θέρος, the two words ὥρη and θέρος could well mean roughly the same: this is apparently the intention of Macan's translation, in his edition of this book, 'the season (ὥρη) was midsummer'. In

[1] P. 161. [2] Pp. xix–xx.

[3] *Psyche, Seelencult und Unsterblichkeitsglaube der Griechen* (1894), 8th edn 1921, p. 179 n. 3.

[4] *Variae lectiones ex historia philosophiae antiquae* (Lugduni-Batavorum, 1842), pp. 31–5.

[5] ZN, p. 973 n. 1.

[6] *Nekyia, Beiträge zur Erklärung der neuentdeckten Petrusapokalypse* (1893), 2nd edn 1913, p. 119.

[7] *Griechische Denker*, vol. 1 (Leipzig, 1896), p. 450.

Demosthenes, 56. 3, ἐν τῇι πέρυσιν ὥραι seems to refer not to the year as a whole, but to the autumn sailing season: this, as a more limited and specific period, would seem to be more relevant to the business contract in question, and in any case seems to be implied by remarks later in the speech (chapters 5 and 10).

(ii) There is secondly the consideration that if in Empedocles ὥρα meant 'year' then thirty thousand years' punishment would be very much longer than the specific periods of punishment that are usual in similar contexts. These other specific periods, as we shall see in a moment, range from nine years in Pindar to ten thousand years in Plato.

There is however an exception, which could be significant. Prometheus, in the extant play of Aeschylus' trilogy, foresees his punishment as τὸν μυρίετῆ χρόνον, lines 94–5. This is not exceptional. But a scholium on these lines remarks that in the Πυρφόρος Prometheus was said to be bound for τρεῖς μυριάδας, where the noun to be supplied is apparently ἐτῶν.[1] This is certainly the meaning given by Hyginus: *Prometheum autem in monte Scythiae nomine Caucaso ferrea catena uinxit* (*sc.* Iuppiter)*: quem alligatum ad triginta milia annorum Aeschylus tragoediarum scriptor ait.*[2]

Even apart from this apparent parallel from Aeschylus, it is possible that Empedocles went out of his way to exaggerate the effect of the crime, by specifying an unduly long term of punishment, either for religious motives, or possibly to provide an accommodation with the time scale of the cosmic cycle.

However, in the absence of any clear parallel for the use of ὥρα to mean 'year' we should more probably take the word in its Homeric sense and reckon therefore that thirty thousand ὧραι are the equivalent for Empedocles, as they would be for Homer, of ten thousand years. This gives us in fact the same figure as the full period of punishment in Plato (see pp. 91–2 below).

[1] Cited by Nauck, *Tragicorum graecorum fragmenta*, p. 69, and by Mette, *Die Fragmente der Tragödien des Aischylos*, fr. 341.

[2] *Astronomica poetica* 2. 15, p. 53, 19–21 Bunte, quoted by Nauck, p. 69, Mette, fr. 321. The same figure is restored to Hyginus' account in his *Fabulae*, 54. 3, cf. 144. 2, by Wilamowitz, *Aeschyli tragoediae*, p. 74, cf. Mette fr. 321.

The unspecified time in Plato's *Politicus* would be the only other possible parallel for a term of punishment as long as thirty thousand years, see p. 91 below.

2. Are thirty thousand ὧραι a literally specific time, or a conventional way of expressing a vast duration?

Bergk[1] and Karsten[2] supposed that thirty thousand ὧραι were intended simply to describe a vast duration. They have been followed by Rohde[3] and by most other commentators, notably Hirzel, who includes Empedocles in a thorough examination of other conventional uses of the number thirty thousand in antiquity.[4] Bakhuizen van den Brink, on the other hand, writes, 'loci ipsius exordium certum aliquod decretum promittere videtur, quod misere languet, si constitutae poenae tempus aliquod incertum tradatur'.[5] This argument is repeated by Mullach.[6] Similarly Dieterich writes, 'ὥρα muss eine ganz bestimmte Bedeutung haben, sonst hat die Zahlangabe ja keinen Sinn'.[7]

The choice, on the arguments usually presented, is a difficult one. We have argued (pp. 71–5) that Empedocles is likely to have envisaged the temporal structure of the cosmic cycle with conscious clarity. But it need not follow, on purely general grounds, that this clarity will have extended to an actual number of years for the *daimon*'s wanderings. It is not true, as Dieterich argues, that a vast but unspecified period can have no meaning. When Hesiod warns his unjust judges that thirty thousand spirits are loose on the face of the earth to seek out injustice, *Op.* 252, he need not mean the figure literally: but his warning loses none of its force thereby. Similarly, we may argue against Bakhuizen van den Brink and Mullach that a vast and unspecified term of punishment is in some ways more terrifying than a specified term.

What is more significant is that a fixed period, and usually a fixed number of years, seems to have been a regular feature of other accounts of punishment for sin, and of release, and in particular of accounts which included reincarnation. Pindar, in fr. 133, says that Persephone sends the souls of the just to the upper world in the ninth year after their imprisonment in Hades. In *Ol.* 2. 68 ff. souls which have held back from sin for three

[1] *Z.A.W.* (1837), no. 55, coll. 450 ff. [2] P. 161. [3] *Psyche*, p. 179 n. 3.
[4] 'Über Rundzahlen', *Berichte über die Verhandlungen der Königlich Sächsischen Gesellschaft der Wissenschaften zu Leipzig, Philologisch-historische Classe* 37 (1885), 64–72.
[5] *Variae lectiones* (1842), p. 31. [6] P. xx.
[7] *Nekyia*, p. 119.

'lives' in the underworld and for three lives on earth are admitted to the isles of the blest. Prometheus, in Aeschylus, foresees his punishment as τὸν μυριετῆ χρόνον, 94–5.[1] Hesiod, in a passage similar to fr. 115, *Theog.* 793–806, describes a ten-year punishment for perjury by the gods. Herodotus, 2. 123, tells of a belief, borrowed secretly from the Egyptians, in a cycle of incarnations that lasted for three thousand years. Plato in the myths of the *Phaedrus* and the *Republic* gives some prominence to specific times in his account of the soul's incarnations.[2] In Virgil purified souls are led to Lethe, *ubi mille rotam uoluere per annos*, *Aen.* 6. 748.

These passages in Pindar, Aeschylus, Herodotus, Plato and Virgil would seem to indicate a tradition of specific times for the soul's punishment and reincarnation or release. We may allow that Empedocles' use of thirty thousand is like the uses cited by Hirzel of the same figure as an exaggerated 'round number', in that the figure is too great to be grasped clearly by the imagination. But, with this qualification, the instances of specific times in similar contexts should probably incline us to take a fairly literal interpretation of thirty thousand ὧραι in Empedocles.

3. The final, and the crucial, question is whether we are entitled to relate this detail of the religious poem to the physical system. The relation of the two poems in general is not a question that falls within the scope of the present study. We shall deal later with one other point, the nature of the *daimones* and their presence in the physical poem, as this impinges on our reconstruction of the zoogony (pp. 325–36). Here as there we limit ourselves to the particular question raised by our reconstruction of the physical poem.

There is no more striking instance of a *prima facie* parallel between the religious and the physical poem than that which lies between fr. 30, which we have just discussed as the probable source of Aristotle's 'equal times', and fr. 115. In fr. 30 a broad oath determines the time at which Strife shall disrupt the Sphere. In fr. 115 broad oaths determine the time for which a guilty

[1] For the scholium on this passage see p. 86 above.

[2] *Phaedrus*, 248E–249B and 257A, *Rep.* 615A. An exception is the *Phaedo*, where the time between incarnations is expressed simply as ἐν πολλαῖς χρόνου καὶ μακραῖς περιόδοις, 107E. The *Politicus* is discussed below, pp. 91–2.

daimon must wander apart from the gods, under the influence of Strife. It is probable that the *daimon*'s crime and its separation from the gods is in some way the religious equivalent of the cosmic disruption and separation of the Sphere by Strife. If there is some such correlation, then it will perhaps be not unlikely that the times mentioned in both fragments may also be related.

If we do suppose that the length of part or all of the world cycle and the length of the cycle of incarnations were in fact related, what precisely is the correlation likely to have been? Raven supposes that thirty thousand seasons would have represented, if anything, the whole of a cosmic cycle.[1] But that would include the time of the Sphere, when it is difficult to see how the *daimon* would still be tossed from sky to sea and cross 'the bitter paths of life'. More likely, the full exile of a *daimon* for thirty thousand seasons would last from the end of one Sphere to the beginning of the next, for all the time, that is, when Strife is keeping the elements separate and moving.

Two early, and very unspecific, attempts to correlate the wanderings of the *daimon* with the length of the world cycle were made by Bergk[2] and Panzerbieter.[3] Zeller objected that Panzerbieter's correlation was invalid, since the *daimon* will have lived before and after its period of exile.[4] Zeller's objection is endorsed by Adam.[5] The point of Zeller's criticism is not entirely clear, but it evidently supposes that the life of the *daimon* before and after its exile would still fall within a world such as our own. This will not be true of the present interpretation. The time before the *daimon* has stained its limbs with blood, and the time when we are released from the cycle and when we feast with the gods, as described in fr. 147, will correspond, on the present interpretation, to the Sphere. It will be possible therefore, at least on these grounds, for the full period of the *daimon*'s wanderings to be precisely coterminous with the cosmic period of movement and separation from the end of one Sphere to the beginning of the next.

A more cogent objection to the correlation of 'equal times' with the thirty thousand seasons of the *Katharmoi* comes from

[1] (1957), p. 352. [2] (1837), col. 450. [3] Pp. 1–2. [4] ZN, p. 973 n. 1.
[5] In his edition of the *Republic* (Cambridge, 1902), vol. 2, p. 304.

Empedocles' own apparent assurance, in fr. 112, of his divinization and thereby presumably his imminent release from the cycle of incarnations.[1] If the fall of the *daimones* in fr. 115 corresponds in time to Strife's disruption of the Sphere, then how is it that the *daimones* are not all released at the same time, once their common exile of thirty thousand seasons has run its course? If, on the other hand, different *daimones* are released at different times, does this not mean that they did not all fall from heaven at the same time, and so does it not follow that the events of the two poems cannot be synchronized in the way we have suggested?

This objection is not perhaps fatal. In the *Phaedrus* Plato allows a shorter time of exile, three thousand years, for someone who lives consistently as a perfect philosopher, 248E–249A. Empedocles' apparent assurance of his own divinization, in a world of increasing Strife, may likewise imply an earlier release from the cycle of incarnation for the chosen few. An alternative, or a complementary, explanation may be that although some *daimones* become leaders of men and then gods, as in fr. 146, they may nonetheless not return to full blessedness until the reconstitution, on a cosmic scale, of the golden age or the Sphere. It may be that these purified *daimones* are kept waiting, as it were, until the full period of thirty thousand seasons has run its course; but that their period of waiting is less burdensome than it is for tainted mortals. The purified *daimones* may go to some place where they are unaffected by the changes of the world;[2] or they may be the *daimones* described by Hippolytus as roaming the earth and directing earthly affairs.[3]

If we allow that this, or any similar, reconstruction would permit the synchronization of thirty thousand seasons with one of Aristotle's 'equal times', then there follows an interesting, and encouraging, affinity with some elements in Plato. We shall note more fully in a moment the connection of the *Politicus* myth with Empedocles (pp. 94–8). In the *Politicus*, as Bignone observes,

[1] Fr. 112. 4–5. It has been claimed that in this fragment Empedocles does not claim *to be* a god, but only to be *like* a god, e.g. by Taeger, *Hermes*, 72 (1937), 356 n. 4. Even if this is so, fr. 146 would seem to include the possibility of divinization at the present time, and so would give rise to a similar difficulty.

[2] Cf. p. 97 n. 3 below.

[3] *Ref.* 1. 3. 1 (DK 31A31).

p. 235 n. 1, the time of cosmic change is synchronized with the completion of the soul's full sum of incarnations, 272 D 6–E 6:

ἐπειδὴ γὰρ πάντων τούτων χρόνος ἐτελεώθη καὶ μεταβολὴν ἔδει γίγνεσθαι καὶ δὴ καὶ τὸ γήινον ἤδη πᾶν ἀνήλωτο γένος, πάσας ἑκάστης τῆς ψυχῆς τὰς γενέσεις ἀποδεδωκυίας, ὅσα ἦν ἑκάστῃ προσταχθὲν τοσαῦτα εἰς γῆν σπέρματα πεσούσης (i.e. at the end of the equivalent in Plato's myth of increasing Love), τότε δὴ τοῦ παντὸς ὁ μὲν κυβερνήτης, οἷον πηδαλίων οἴακος ἀφέμενος, εἰς τὴν αὑτοῦ περιωπὴν ἀπέστη, τὸν δὲ δὴ κόσμον πάλιν ἀνέστρεφεν εἱμαρμένη τε καὶ σύμφυτος ἐπιθυμία.

This synchronization is in itself significant for our thesis. Still more significant is it, if we inquire more specifically into Plato's times. In the *Politicus* we are not told how long either period lasts, the period of god's control, or the period of control by σύμφυτος ἐπιθυμία. Plato is content to speak of the world's return to dissolution, the equivalent, so we shall see, of increasing Strife, as occupying simply πολλὰς περιόδων μυριάδας, 270 A. But in the *Phaedrus*, 248 E–249 B, and in the *Republic*, 615 A, the time from one incarnation to the next is said to be a thousand years; while in the *Phaedrus*, 248 E and 257 A, we are given the additional information that a full cycle of incarnations takes ten thousand years. It seems not unlikely that the full cycle of incarnations in the *Phaedrus* would be the same as the full measure of γενέσεις and σπέρματα in the passage quoted from the *Politicus*.[1]

From Plato therefore we have two interesting possible correlations with Empedocles.

1. In the *Phaedrus* ten thousand years is the time before the soul regains her wings, the time, that is, before the soul regains perfect happiness in contemplation of the forms. Ten thousand years is precisely the figure we have in Empedocles, if we reckon

[1] In the *Republic* the arrangement is rather different from that in the *Phaedrus*, in that in the *Republic* the thousand-year period excludes the time of actual incarnation, and it is this discarnate period of a thousand years between each incarnation which for just souls is the time of supreme blessedness.

We should perhaps also note that the περίοδοι of the *Politicus*, 270 A, are not necessarily years. If they were, they would hinder our correlation of the *Politicus* and the *Phaedrus*: for πολλὰς περιόδων μυρίαδας in the *Politicus* would in terms of the *Phaedrus* be one-half of ten thousand years, which is less than a 'myriad' of years.

three ὧραι to a year; and this is the time of the *daimon*'s wanderings before it regains its primal innocence.

2. In the *Politicus* ten thousand years, we suggest, is the same as the full period of γενέσεις and σπέρματα, which is synchronized with the cosmic change at the end of what is the equivalent, so we shall argue, of increasing Love. Similarly, in Empedocles, ten thousand years or thirty thousand seasons may be equivalent, we suggest, to the full period of separation and movement before the world returns to the cosmic bliss of the Sphere.[1]

THE STRUCTURE OF THE CYCLE IN SECONDARY SOURCES

Equal periods of rest and movement, together with a merely transitional period of total Strife, determine the proportions of the cycle. In examining the ways in which the cycle was referred to in antiquity we may hope therefore to find some confirmation of our reconstruction.

But first we may pause for a moment over the description of the cycle that has been most common in modern times. It is said that there were four—not necessarily equal—periods. One of these is our world, and another is the world the same as or similar to ours. This pair of worlds is divided by a pair of extreme periods where total separation or total unity has made a world impossible.[2]

Strictly, this is correct. But it is misleading in so far as it may imply that total Love and total Strife are a pair of opposite and therefore *equal* poles. Both, it is true, are non-cosmic. Empedocles himself brought this out in the parallel verses which he used to describe both states, as we shall see later (pp. 149–54). But there the resemblance ends. The Sphere, so we have learnt from Aristotle and in part from fr. 30, is equal to the whole world of

[1] We discuss below, pp. 96–7, why, in the *Politicus* myth, there is no direct equivalent of the Sphere.

[2] This is the view of Zeller, ZN, pp. 971 and 1033; Ferrari (1891), pp. 58–9, cf. p. 65; Burnet, *EGP*, p. 234; Covotti (1901), p. 150; Wellmann, article on Empedocles in Pauly–Wissowa's *Real-Encyclopädie*, Band 5 (1905), col. 2510; Bignone, pp. 548 and 594; Skemp, *Plato's Statesman* (London, 1952), p. 90; Raven (1957), pp. 327 and 336; and Santillana, *The origins of scientific thought, from Anaximander to Proclus* (London, 1961), pp. 110–11.

plurality. Total separation, on the other hand, is a transitory condition, a turning point, as we have seen from fr. 35.

The four-period view, with its implication of opposite and *equal* poles, has arisen no doubt from a loose handling of fr. 17. There it is a twofold tale, because Empedocles is describing primarily the minor alternation, the two generations of mortal things and their constant succession. He does not tell us what happens when things become one,[1] nor what happens when they are separated completely. There is no hint, and we must not conclude, that unity and separation are a pair of opposite and *equal* states.

We turn now to the descriptions of Empedocles' cycle given by Plato, by Aristotle, and by Simplicius and other later writers.

PLATO

1. There is Plato's famous description in the *Sophist*, 242 D–243 A, of the Ionian and Sicilian Muses. Both say, τὸ ὂν πολλά τε καὶ ἕν ἐστιν, ἔχθραι δὲ καὶ φιλίαι συνέχεται. Empedocles alone, ἐν μέρει δὲ τοτὲ μὲν ἓν εἶναί φασι τὸ πᾶν καὶ φίλον ὑπ' Ἀφροδίτης, τοτὲ δὲ πολλὰ καὶ πολέμιον αὐτὸ αὑτῷ διὰ νεῖκός τι.

It is curious how difficult it has proved to explain this simple passage on the standard interpretation of the cycle. Bignone wavers between supposing that Plato is describing only the extreme periods of total Love and total Strife,[2] and supposing that he means increasing Love and increasing Strife.[3] Mondolfo tries to reconcile both approaches with a paraphrase that reveals particularly clearly the awkwardness of the usual view. Empedocles' 'cosmic cycle, *abstractly reduced* by Plato to two opposite phases, unfolds itself *in reality* in four; two extremes, the total mixture of the elements and their complete separation, and two intermediate phases, or phases of partial mixture and distinction' (my italics).[4]

We can see that the division of Empedocles' world into the one and the many is not a description solely of total Love and total Strife; nor is it an exaggerated description of the minor alternation between becoming one and becoming many; nor is it, due we might suppose to the exigencies of the comparison with Heraclitus, a loose way of describing four phases in two. Plato is

[1] Except for a brief allusion in line 8*a*, see pp. 323–4 below.
[2] P. 326 n. 2. [3] P. 587. [4] *Phronesis*, 3 (1958), 77.

thinking of Empedocles' cycle from the most general point of view. He therefore naturally reproduces the *major* alternation between being one and being many.

2. In the myth of the *Politicus* there is perhaps a parallel for the other feature of our reconstruction, the transitory nature of Strife's total rule.

The reverse repeated worlds of the *Politicus* are certainly Empedoclean. Not only did Empedocles have such worlds (see chapters 8 and 9), but no one else at any time, except the stranger in Plato's dialogue, has been known to follow him. The details of the myth may or may not be taken from Empedocles. Empedoclean are probably Love's position at the centre of the world;[1] the placing of our present world in the time of increasing evil;[2] and the storm or explosion of the elements at the beginning of our world.[3] Parody is probably the idea of men who grow back into children,[4] an idea which Aristotle used to discredit Empedocles.[5]

In Plato's myth the transition from the equivalent of increasing Strife to the equivalent of increasing Love is described as follows, 273 C–E:

προϊόντος δὲ τοῦ χρόνου καὶ λήθης ἐγγιγνομένης ἐν αὐτῶι μᾶλλον καὶ δυναστεύει τὸ τῆς παλαιᾶς ἀναρμοστίας πάθος, τελευτῶντος δὲ ἐξανθεῖ τοῦ χρόνου καὶ σμικρὰ μὲν τἀγαθά, πολλὴν δὲ τὴν τῶν ἐναντίων κρᾶσιν ἐπεγκεραννύμενος ἐπὶ διαφθορᾶς κίνδυνον αὐτοῦ τε ἀφικνεῖται καὶ τῶν ἐν αὐτῶι. διὸ δὴ καὶ τότ' ἤδη θεὸς ὁ κοσμήσας αὐτόν, καθορῶν ἐν ἀπορίαις ὄντα, κηδόμενος ἵνα μὴ χειμασθεὶς ὑπὸ ταραχῆς διαλυθεὶς εἰς τὸν τῆς ἀνομοιότητος ἄπειρον ὄντα πόντον (Simplicius, Proclus. τόπον mss.) δύηι, πάλιν ἕφεδρος αὐτοῦ τῶν πηδαλίων γιγνόμενος, τὰ νοσήσαντα καὶ λυθέντα ἐν τῆι καθ' ἑαυτὸν προτέραι περιόδωι στρέψας, κοσμεῖ τε καὶ ἐπανορθῶν ἀθάνατον αὐτὸν καὶ ἀγήρων ἀπεργάζεται.

Plato's description of total Strife seems to confirm our reconstruction in two ways. First, it is of short duration, transitional.

[1] 272 E, cf. pp. 122–3 below.

[2] 271 C–272 B, cf. 270 D 3–4, 273 E 6–8 *et alibi*. For Empedocles, see Arist. *De gen. et corr.* 334 a 6 ἐπί τε τοῦ νείκους νῦν.

[3] 273 A. We have already mentioned the storm of the elements, pp. 49–50. The evidence is given in note 4, pp. 268–73.

[4] 270 D–E, 271 B, 273 E.

[5] *De caelo* 280 a 11–19, 279 b 14–17, cf. *Met.* α' 994 a 22–b 3. See also p. 126 below.

For it is clear enough that, compared at least with the periods that precede and follow, it is for no more than a short while that the world is left to hover on the brink of destruction, before god intervenes to save it. Secondly, the whole idea of total Strife as something that never actually happens, as a frightful possibility, a 'boundless sea of unlikeness', in which, one feels, the world once lost would be irretrievable, answers closely enough to the attempted reconstruction we have offered of total Strife as something not arbitrarily shortened, but of its nature transient, a condition that could not endure for any length of time.

Or have we, in saying even so little, incorporated Platonic ideas into Empedocles?

It is true that for Plato evil is very different from what it was for Empedocles. There are not δύο τινὲ θεὼ φρονοῦντε ἑαυτοῖς ἐναντία, 270 A; hence also Plato's scornful διὰ νεῖκός τι in the *Sophist*, 243 A, an objection which Aristotle repeats, *Met.* 989 a 25–6, 1075 b 6–7. It is, no doubt, Plato's insistence that there can be only one, good god that makes him depict the father as retiring from the world at the very beginning of 'increasing Strife'. The world's subsequent deterioration is the result of its own innate imperfection. Plato does not want to see his good god fight a losing battle with evil, not even with the evil of the world's own nature. *A fortiori* there can be no time when god or Love lies defeated. Strife's triumph becomes in Plato not the triumph of an evil god over a good god, but the world's own suicidal falling to decay.

From this it might be argued that Plato's whole description of 'total Strife' as a moment's danger, as something never actually attained and so in some sense impossible, is all part of his correction of Empedocles.

We must reply that fr. 35 shows that Plato has followed the externals at least of Empedocles' scheme in making 'total Strife' of short duration. The notion of utter evil as something never realized can be seen as implicit in that fact; and one way in which Empedocles may have developed the implication we have attempted to suggest in our account of the balance of the cycle. But how far in fact Empedocles rationalized this feature of his scheme, and whether, like Plato, in moral as well as in physical terms, we cannot know.

There is no direct mention in the *Politicus* of the Sphere as such, unless it be in the words which close the passage already quoted: κοσμεῖ τε καὶ ἐπανορθῶν ἀθάνατον αὐτὸν καὶ ἀγήρων ἀπεργάζεται. This is like the descriptions of Anaximander's *arche*, ἀθάνατον . . . καὶ ἀνώλεθρον,[1] and ἀίδιον . . . καὶ ἀγήρω.[2] The Sphere is in a very real sense Empedocles' *arche*.

In the *Politicus* myth the world's highest good is reached when men are ruled wisely and well by divine beings, the animals are tame, and so on, 271 C–272 D.[3] The world's imperfect nature cannot sustain this pitch of perfection for ever. It must continue with the cycle of change, 272 D 6–E, 269 D–270 A. There is no hint at this point of a material unification of the world in Empedocles' literal sense, and so, necessarily, no hint of the duration of the Sphere.

The Sphere, we may feel therefore, has become Plato's golden age, as each of them is the time of highest happiness. Apart from the parallels of content we have just noted, there is one parallel of language. In the golden age, Plato writes, 271 E, πόλεμός τε οὐκ ἐνῆν οὐδὲ στάσις τὸ παράπαν. Empedocles had said of the Sphere, fr. 27a,

οὐ στάσις οὐδέ τε δῆρις ἀναίσιμος ἐν μελέεσσιν.[4]

[1] Arist. *Phys.* 203b13–14 (DK 12A15, B3).

[2] Hippol. *Ref.* 1. 6. 1 (DK 12A11, B2).

[3] The two points specified above recur in Empedocles, see Hippol. *Ref.* 1. 3. 1 (DK 31A31), and fr. 130.

[4] This anonymous fragment from Plutarch, *Max. cum princ. phil. esse diss.* 777C, was attributed to Empedocles by Wilamowitz, *Hermes*, 37 (1902), 326–7, and earlier by Bergk, *Z.A.W.* (1842), no. 97 col. 1004, reprinted in *Kleine philologische Schriften* (Halle a. S. 1884–6), vol. 2, p. 49. Minar (1963), p. 135 n. 2, argues against the fragment having described the Sphere, apparently on the ground that in Plutarch the verse describes the effect of philosophy on the individual. But, as Bignone had rightly observed in his note on the fragment, descriptions of the Sphere applied to the individual are not unknown elsewhere. Marcus Aurelius twice uses fr. 27. 4=28. 2 in this way, 8. 41, 12. 3, cf. 11. 12: see p. 23 above. There is a similar reminiscence, whether from Plato or Empedocles, in Horace, *Serm.* 2. 7. 85–7,

> responsare cupidinibus, contemnere honores
> fortis, et in se ipso totus, teres atque rotundus,
> externi ne quid ualeat per leue morari.

This is imitated by Ausonius, *Idyll.* 16. 5, p. 90 Peiper,

> securus, mundi instar habens, teres atque rotundus.

The inspiration for this transference of ideas probably comes initially from the repetition in the *Timaeus* of the pattern of the world soul in the soul of the individual.

If we do identify the Sphere and Plato's golden age, then it turns out that the golden age in the *Politicus* occupies all or most of 'increasing Love'.[1] But clearly it would be wrong to claim that in this way Plato has made the Sphere equal half the cycle, because Empedocles had done so. Rather, Plato has removed the Sphere as a separate entity and incorporated at least one of its features into the description of increasing Love and the golden age.

Plato's omission of the Sphere as a separate entity will probably have been due to his own intuition that there is a non-spatial world independent of material things. For if, like later Platonists, Plato had seen the Sphere—a place of perfection, where god's rule is supreme—as an anticipation of the intelligible world, then he would naturally have thought of it as outside the cycle of change, not as one stage in it.

That Plato has thought of an independent intelligible world in his reconstruction of Empedocles' myth is perhaps to be seen in god's complete absence from the world of 'increasing Strife', cf. 272D 6–273E4. It is doubtful whether Empedocles could have seen Love thus, as entirely unimplicated in the changing world, although we might compare Xenophanes' god ἀπάνευθε πόνοιο, fr. 25. Another possible indication of a world apart from the sensible world is to be seen in the mention of chosen souls who are not sent back into the cycle of change, 271C2.[2] Again, there has to be a 'place' not affected by the evils of the world. Such a place it would perhaps be difficult to find in Empedocles' system—although we may wonder where Empedocles himself is going, on the verge of divinization in a world of increasing Strife.[3]

Conclusion

Thus the *Sophist* offers quite a striking confirmation that the primary division of Empedocles' cycle was into the one and the

[1] For its beginning see 271D2–6. For its end see 272D6–E6.

[2] Cf. *Phaedrus* 248C3–5, *Phaedo* 114C.

[3] Cf. fr. 112. 4. To pursue this point would carry us too far into discussion of the religious poem. A possible solution, if in the religious context it is right to supply one, is that a purified *daimon*, such as Empedocles is about to become, goes to join a cosmic 'pool' of Love where it can remain unaffected by changes in the world. Another possibility is that purified *daimones* roam across the earth, as invisible spirits, directing earthly affairs. Cf. p. 90 above.

many, a division which chapter 2 has shown was identical with the division into a period of movement and a period of rest.

In the *Politicus* myth 'total Strife' is transitional. This is a detail taken from Empedocles, although it suited Plato's own ideas peculiarly well. The Sphere as a separate entity, for reasons peculiar to Plato, has disappeared.

ARISTOTLE

Aristotle's uses of ἐν μέρει are most instructive.

'Εν μέρει is first used for the major alternation, the alternation of rest and movement, 250b27, ἐν μέρει κινεῖσθαι καὶ πάλιν ἠρεμεῖν, as again at 252a20–1, ἐν μέρει τὸ πᾶν ἠρεμεῖν καὶ κινεῖσθαι πάλιν. On the first occasion the minor alternation is implied without the use of ἐν μέρει, 250b27–9, κινεῖσθαι μὲν ὅταν ἡ φιλία ἐκ πολλῶν ποιῇ τὸ ἓν ἢ τὸ νεῖκος πολλὰ ἐξ ἑνός.

Later Aristotle uses ἐν μέρει for the minor alternation, the alternation of different periods of movement, 252a7–9, τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος ὑπάρχει τοῖς πράγμασιν ἐξ ἀνάγκης. On this occasion the major alternation is implied without the use of ἐν μέρει, 252a7–10, τὸ κρατεῖν καὶ κινεῖν... ἠρεμεῖν δὲ τὸν μεταξὺ χρόνον.

Thus it is plain that there are two alternations, although for the sake of clarity Aristotle avoids using ἐν μέρει twice in the same formula.

Further, it is plain that the two alternations are of unequal value. Aristotle's complete formulae make it clear that the alternation between unification under increasing Love and separation under increasing Strife is subordinated to the alternation between rest and movement by being contained entirely within one-half of the main alternation, the half which is movement:

250b27–9. ἐν μέρει κινεῖσθαι καὶ πάλιν ἠρεμεῖν, κινεῖσθαι μὲν ὅταν ἡ φιλία ἐκ πολλῶν ποιῇ τὸ ἓν ἢ τὸ νεῖκος πολλὰ ἐξ ἑνός, ἠρεμεῖν δ' ἐν τοῖς μεταξὺ χρόνοις.

252a7–10. τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος ὑπάρχει τοῖς πράγμασιν ἐξ ἀνάγκης, ἠρεμεῖν δὲ τὸν μεταξὺ χρόνον.

What we are not told in these formulae is that the time of movement equals the time of rest, and that there is no third period

of movement, total Strife. But it is worth noting how easy it is to understand Aristotle's compact formulae if we have these two further facts in mind.

For first, it is obvious from the symmetry of Empedocles' system, as we have already noted (p. 57), that the alternation within the period of movement, between increasing Love and increasing Strife, is composed of equal parts. Aristotle's free use of ἐν μέρει for *both* alternations would be awkward if we had to think of the one alternation (increasing Love and increasing Strife) as composed of equal parts, and the other alternation (rest and movement) as composed of unequal parts.

Secondly, it would be difficult to understand the simple bifurcation of the minor alternation, the alternation between periods of movement—κινεῖσθαι μὲν ὅταν ἡ φιλία ἐκ πολλῶν ποιῇι τὸ ἓν ἢ τὸ νεῖκος πολλὰ ἐξ ἑνός and τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος—if we had to think of this alternation as somehow divided into, or separated by, a third full period of movement, total Strife.

SIMPLICIUS AND OTHER LATER WRITERS

The character of Simplicius' evidence on alternation has already been described (p. 28). Simplicius' attitude often makes him inaccurate, e.g. on the question of one rest period or two (see pp. 29–30), and careless, e.g. on the distinction of the major and the minor alternation (see pp. 68–9 above and 319 n. 5 below). But one or two points in Simplicius' interpretation, and in similar interpretations, deserve a glance.

1. Simplicius takes the Sphere to be the intelligible world.[1] Admittedly little leverage was needed to find an intelligible world where there was none. Anaxagoras' talk of inhabited regions of the earth other than our own is referred to a world of forms, although Simplicius has heard of, or thought of, the correct explanation.[2] But there might have been some difficulty in identifying the intelligible world with an instantaneous or transitional Sphere.[3] A Sphere of equal length to the world of plurality was easy prey.

[1] E.g. *Phys.* 1123. 25–1124. 3.
[2] *Phys.* 34. 18–35. 21, 157. 5–24.
[3] Cf. pp. 69–70 above.

2. In another place, *De caelo* 308. 2–4, Simplicius associates the Sphere with the risen world of Christianity: εἰ ἐκ τούτου τοῦ κόσμου γίνοιτο κόσμος ἄλλος ὁ καλούμενος σφαῖρος ἤ, ὡς οἱ νῦν λέγουσιν, ὁ καινός . . .[1] It is not clear whether this comparison comes from Simplicius or from οἱ νῦν, who are presumably Christians, and whom Simplicius refers to again in this way elsewhere.[2] It was probably the work of Christians. The identification of the Sphere and the risen world does not occur again. But elsewhere Empedocles is brought into line with Christian eschatology.[3] Heraclitus, Plato and the Stoics were treated in similar fashion.[4] Whether the adaptation was due to Simplicius himself or to Christians, one feels again that a Sphere of substantial duration will have been needed for this transference of ideas.

3. Among his contemporaries Simplicius tells us that it was common to treat Strife as the sole cause of the sensible, and Love as the sole cause of the intelligible world, *Phys.* 31. 31–32. 1: ὅτι γὰρ οὐχ ὡς οἱ πολλοὶ νομίζουσι φιλία μὲν μόνη κατ' Ἐμπεδοκλέα τὸν νοητὸν ἐποίησε κόσμον, νεῖκος δὲ μόνον τὸν αἰσθητόν. This view is attributed specifically to Alexander.[5] It is stated or implied in Proclus[6] and Syrianus,[7] and of the sensible world only in Theodorus Prodromus.[8] The earliest and longest example of this interpretation is in Hippolytus' digression on Empedocles, *Ref.* 7. 29.

Simplicius himself held that Love and Strife were at work in both worlds.[9] The explanation of Strife's presence in the Sphere is probably that duality is involved in the distinction between one form and another.[10]

Philoponus has a somewhat similar approach. He takes the alternation of Love and Strife to signify the movements of the

[1] For this sense of καινός see Ioannes, *Apoc.* 21. 1; Petrus, *Epistola* 2. 3. 13; Isaiah 65. 17, 66. 22.
[2] *De caelo* 295. 26–9.
[3] Oecumenius, *Comm. in epist. 2 s. Petri* cap. 4, *PG* 119, 609c. Clem. *Strom.* 5. 122. 3 (cf. DK 31B147).
[4] Clem. *Strom.* 5. 9. 4–7; and for Plato alone, Eus. *Praep. evang.* 11. 32 ff.
[5] *De caelo* 528. 29–30. [6] *In Tim.* 2. 69. 24–7. [7] *Met.* 42. 35–43. 28.
[8] *Amicitia exsulans*, *PG* 133, col. 1324. 2–9.
[9] *Phys.* 31. 18–34. 12, 160. 12–14, 1123. 25–1124. 18; *De caelo* 528. 30–530. 11. [10] Cf. *Phys.* 34. 8–12.

soul from sensible to intelligible reality.[1] Also, Love is the principle of sameness and Strife of otherness, and there is therefore only a general, not an exclusive, predominance of Love in the intelligible and Strife in the sensible world.[2]

Love as sole cause of the intelligible world and Strife as sole cause of the sensible world it would be easy to dismiss as a piece of thorough Platonizing, as does Zeller, for example.[3] It is true that by a fairly natural process of interpretation the contrast between the Sphere and the world of plurality could come to overshadow and finally more or less to obliterate the contrast between increasing Love and increasing Strife, once interest had centred on the Sphere as representing the intelligible world. But to think of Empedocles' world as affording primarily a contrast between the one and the many, and to think of the first as caused by Love and the second as caused by Strife, is in effect close to Plato's simple contrast in the *Sophist*.[4] It is satisfying therefore to see how easily amenable was Empedocles' system both to the normal Platonizing interpretation (if we think exclusively of the major alternation), and to Simplicius' correction of it (if we think in addition of the minor alternation).

TWO 'MOVING CAUSES'

There is an important consequence to be drawn from our reconstruction. Primarily, Love was the cause of attraction and happiness, and Strife the cause of repulsion and misery: of this the fragments leave no doubt. But we have argued that when attraction and happiness are complete the world is at rest, and that for an equal period Strife is active and the elements are moving. This suggests very strongly, not that there were two sources of movement, as has usually been supposed, but that incidentally to their other activities Strife was cause of movement, and Love of rest.

This fits in well with the common fifth-century tendency that we have noted (pp. 38–45), towards associating unity with rest and plurality with movement. Because she was the source of

[1] E.g. *Phys.* 24. 3–22. [2] *De anima* 73. 9–74. 29.
[3] ZN, p. 976 n. 1, more forcefully in previous editions.
[4] 242 D–243 A, quoted and discussed pp. 93–4 above, cf. pp. 177–8 below.

unity, Love will also have been the cause of rest. Because it is the cause of separation, Strife will also have been the principal cause of movement.

This point – Love as cause of rest, Strife as cause of movement – has already been made by Tannery,[1] and is repeated casually by Pfligersdorffer.[2] But neither writer has brought in the arguments which give the idea its chief plausibility: the widespread association of unity with rest and of plurality with movement, and the equal division of the cycle between rest and movement and between Love and Strife.

The opposite view involves two assumptions, that the elements are of themselves motionless, and that Love and Strife are a pair of moving causes. The first assumption, that the elements are intrinsically immobile, is voiced by Capelle: 'Wenn er sich aber – unter dem Einfluss der eleatischen Ontologie – die Urteilchen der Elemente durchaus unveränderlich dachte, dann musste er sie sich auch, dieser entsprechend, als (von sich aus) völlig unbewegt vorstellen.'[3] The second assumption, that Love and Strife are a pair of moving causes, is very widespread.[4] Both assumptions come out particularly clearly in some remarks of Acri: 'Ma perchè i detti elementi si legano insieme e discernono? Non per virtù propria, chè l'ente è di per sè quieto, ma per forza di fuori... Ora due son le forme del moto, legare e sciogliere; dunque due le forze, amore e odio.'[5]

First, on our interpretation, rest for Empedocles is not, as Acri and Capelle thought, the condition to which things revert when there is no longer anything to disturb them. Rest is a perfection and requires a cause no less, even more one might say, than movement.

Secondly, on our interpretation, Empedocles' two 'moving causes' are no longer something of an extravagance. There is only

[1] *Science hellène*, pp. 323–4. [2] (1959), p. 110 n. 2. [3] (1935), p. 184.

[4] This assumption may be found in Brandis (1835), pp. 195–204; Steinhart, who also makes the elements 'an sich...unbeweglich' (1840), p. 91a; Panzerbieter, p. 1; Zeller, ZN, pp. 1034–5 *et alibi*; Wellmann (1905), col. 2510; Cherniss, *ACP*, p. 47; Skemp (1942), pp. 56–7, cf. p. 63, and (1952), pp. 90 and 146 n. 1; and Raven (1957), p. 324.

[5] 'De' sistemi di Empedocle e Democrito', *Rivista Sicula di Scienze, Letteratura ed Arti*, anno 2, vol. 4 (Palermo, 1870), p. 410.

one primary cause of movement, Strife. Love, incidentally to her other activities of making things one and happy, is cause of rest. For the movment which Love initiates is movement towards rest, and when Love is successful there is no longer any movement.[1]

The obscurity has perhaps been partly due to Aristotle's frequently classing Love or Love and Strife as 'moving causes'.[2] But for Aristotle a moving cause may as well lead to rest as to movement. It is true to say of Love, as of Strife, κρατεῖν καὶ κινεῖν, *Phys.* 252a7–8. But a moving cause as a cause simply and solely of movement Love cannot have been. For again, the movement which Love directs, mixing, is movement that must issue in rest.

Love then is the cause of good things, of unity, of harmony, and thereby of rest. Strife is the cause of evil, of hatred and separation, and thereby of movement. Their power, and so the length of their rule, is equal.

[1] This demarcation of the functions of Love and Strife probably explains the inclusion of Movement and Rest, Κινώ τε 'Αστεμφής τε, along with Speed and Slowness, in a list of μοῖραι καὶ δαίμονες, which are evidently various manifestations of Love and Strife, frr. 122 and 123: see p. 51 above.

[2] *De gen. et corr.* 314a16–17, 333b22–4; *Met.* 987a7–13, 989a19–26. Comparable with Anaxagoras' νοῦς: *Phys.* 198b10–16, 203b12–13, 250b21–251a5, 252a5–32, 265b17–23; *De part. anim.* 640b4–8; *Met.* 984b8–985a31, 988a32–4, 988b6–11, 1075a38–b11, 1091b6–12. Cf. (Theophrastus *ap.*) Simpl. *Phys.* 25.23–4 = *Dox.* p. 478. 3–4. For the later tradition cf. Hippol. *Ref.* 7.29. 4 and 7; Philoponus, *De gen. et corr.* 11. 21–3.

CHAPTER 5

THE PLACE OF LOVE AND STRIFE

INTRODUCTION

During the time when Love was prevailing Strife was driven to the outermost circumference of the world, ἐπ' ἔσχατα τέρματα κύκλου fr. 35. 10. Where did Love go when Strife was prevailing?

The usual answer has been that Love in her turn was driven outside the world.[1] There is however no evidence for this view. The idea has been accepted simply for the sake of its symmetry. When Love prevails, Strife is driven outside. Therefore when Strife prevails, Love, it is thought, should be driven outside.[2]

There have been two divergent views, basing Love always at the centre or always at the circumference.

Petersen, in an interpretation of fr. 35, put Strife inside the world permanently surrounded by Love.[3] As the one expands, the other contracts. Thus Love expands and forces Strife into the very

[1] This is the answer given by Burnet, *EGP*, pp. 234, 236, 242; Cornford (1912), p. 239; Bignone, pp. 223, 576, 585; Frenkian, *Études de philosophie présocratique 2, la philosophie comparée, Empédocle d'Agrigente, Parménide d'Élée* (Paris, 1937), pp. 53–5; Freeman, *The pre-Socratic philosophers, a companion to Diels*, Fragmente der Vorsokratiker (Oxford, 1946, 2nd edn 1949), p. 186; Skemp (1952), in his diagram, p. 90; Mugler (1953), pp. 42–3; Zafiropulo, *Empédocle d'Agrigente* (Paris, 1953), p. 151; and Raven (1957), p. 346; and followed tentatively by Minar (1963), p. 134; and probably Santillana (1961), pp. 112–13. (It is difficult to form a precise image from Santillana's description of Love 'moving *out* from the *centre* of the whirl towards the *middle*', my italics.)

[2] We said that Strife was driven to the 'outermost circumference' of the world, by way of paraphrasing ἔσχατα τέρματα κύκλου. It would seem a proper extension of this notion to speak of Strife, when the process described in fr. 35 is complete, as 'outside' the Sphere. This need not raise any difficulties with regard to the void, either in Empedocles' conception, or in fact. For, whether or not Empedocles adverted to the question, there need in fact be no increase of total volume when Strife leaves the elements and goes 'outside'. In a similar fashion, Plato speaks of the world soul as ἔτι ἔξωθεν: this, we shall suggest, pp. 144–5, is in order to make the world soul occupy the place of Strife, the evil god of whom Plato disapproved.

[3] *Allgemeine Literatur-Zeitung* (1837), no. 97, coll. 161–8.

centre. Then Strife expands and forces Love out towards the circumference.

Panzerbieter took the opposite view.[1] He said that it was of the nature of Love to be somehow inside the elements even when they were fully separated, 'innerhalb der geschiedenen Elemente bleiben und die einzelnen Massen unter sich zusammenhalten. Jedoch über diesen letzten Punkt haben wir keine bestimmte Nachricht.'

Panzerbieter has been followed in a somewhat confused fashion by Tannery.[2] Tannery however holds that 'total' Strife is a preliminary sorting out of the elements immediately following the Sphere.[3] Panzerbieter has also been followed in one place by Burnet, who thus contradicts his usual view.[4] Since then the idea that Love was driven to the centre of the world by Strife has been repeated a number of times, but without discussion.[5]

The argument here will be that Love was indeed at the centre of the divided elements and that this is the meaning of the opening verses of fr. 35. These verses are the only direct evidence.

Thus our conclusion will be that Love moved outwards from the centre when her power was increasing and forced Strife to the circumference, ἐπ' ἔσχατα τέρματα κύκλου. Conversely, when Strife's power is increasing Strife will have moved inwards from the circumference and will have forced Love into the centre.

The interpretation of fr. 35 is important not only for determining the relative positions of Love and Strife. The fragment has already been used to show that total Strife was of minimal duration (pp. 58–9), and to help show that the fully separated elements were moving (pp. 25–6).

It should be emphasized that if the interpretation that follows of fr. 35 is not accepted, there is still no evidence for placing Love

[1] P. 3 and in his note on fr. 17. 20.

[2] *Science hellène*, pp. 323–4, cf. pp. 318, 320, 322 and 326.

[3] See pp. 146–8 and 158 below.

[4] References pp. 113–14 below.

[5] Diès, whose image is a trifle vague (1909), p. 93; Robin (1923), pp. 126–7; Rey (1939), pp. 106 and 108; Vandercoilden, *Empédocle et sa conception de la nature*, unpublished thesis of the University of Louvain, 1945, pp. 48–9; Nélod, *Empédocle d'Agrigente* (Bruxelles, 1959), p. 71; Pfligersdorffer (1959), p. 110 n. 2; possibly Munding (1954), p. 144.

at the time of her defeat outside the elements. Either fr. 35 shows that Love is at the centre of the divided elements; or we have no direct evidence on the point at all.

FRAGMENT 35

αὐτὰρ ἐγὼ παλίνορσος ἐλεύσομαι ἐς πόρον ὕμνων,
τὸν πρότερον κατέλεξα, λόγου λόγον ἐξοχετεύων
κεῖνον· ἐπεὶ Νεῖκος μὲν ἐνέρτατον ἵκετο βένθος
δίνης, ἐν δὲ μέσῃι Φιλότης στροφάλιγγι γένηται,
ἐν τῇι δὴ τάδε πάντα συνέρχεται ἓν μόνον εἶναι,
οὐκ ἄφαρ, ἀλλὰ θελημὰ συνιστάμεν' ἄλλοθεν ἄλλα.
τῶν δέ τε μισγομένων χεῖτ' ἔθνεα μυρία θνητῶν·
πολλὰ δ' ἀμείκτ' ἔστηκε[1] κεραιομένοισιν ἐναλλάξ,
ὅσσ' ἔτι Νεῖκος ἔρυκε μετάρσιον· οὐ γὰρ ἀμεμφέως
τῶν πᾶν ἐξέστηκεν ἐπ' ἔσχατα τέρματα κύκλου,
ἀλλὰ τὰ μέν τ' ἐνέμιμνε μελέων τὰ δέ τ' ἐξεβεβήκει.
ὅσσον δ' αἰὲν ὑπεκπροθέοι, τόσον αἰὲν ἐπήιει
ἠπιόφρων Φιλότητος ἀμεμφέος ἄμβροτος ὁρμή·
αἶψα δὲ θνητὰ φύοντο, τὰ πρὶν μάθον ἀθάνατ' εἶναι,
ζωρά τε, τὰ πρὶν ἄκρητα, διαλλάξαντα κελεύθους.
τῶν δέ τε μισγομένων χεῖτ' ἔθνεα μυρία θνητῶν,
παντοίαις ἰδέῃσιν ἀρηρότα, θαῦμα ἰδέσθαι.

Lines 3–5 of this fragment are taken as a description of the Sphere, explicitly by Bergk[2] and Zafiropulo[3] and presumably by most other scholars, since line 10 tells us that Strife is driven outside when Love prevails, and ἐνέρτατον βένθος δίνης in lines 3–4 is commonly taken to mean the outermost circumference, the same as ἔσχατα τέρματα κύκλου.[4] If the lines describe the Sphere, the sense will be: 'When Strife is outside the elements and Love is in the centre, the elements join together and form the Sphere, lines 3–5. But the process of reunification is delayed sufficiently (οὐκ ἄφαρ ἀλλὰ θελημά) for numberless mortal creatures to be born, lines 6 ff.'

[1] Diels prints ἔστηκε not ἔστηκε. This he plausibly explains, in line with the imperfect tenses in the immediate context, as an imperfect formed from στήκειν. Cf. Schwyzer, *Griechische Grammatik*, vol. 1, p. 767.

[2] (1837), col. 449.

[3] (1953), p. 130.

[4] References p. 113 below.

A different interpretation was given by Zeller[1] and von Arnim.[2] They made events in lines 3–4 *precede* the formation of mortal creatures as described in the rest of the fragment.

This should have led to Love being at the centre of the elements at the time of total Strife. It is true that for von Arnim, and in a modified sense for Zeller, there is only one world of mortal creatures from Sphere to Sphere, fashioned by Love after an initial separation of the elements by Strife.[3] But for Zeller and von Arnim the time between the separating of the elements and Love's fashioning of mortal creatures corresponds to total Strife in a full two-world scheme; and on their view Love at such a time should be ἐν μέσηι στροφάλιγγι.

It is curious, and instructive, to watch how in fact both writers avoid this question of place. When dealing with the cosmogony Zeller wrote 'an einem Punkt' for ἐν μέσηι στροφάλιγγι,[4] though elsewhere he was more precise.[5] Von Arnim declared that the geography of the opening lines was insoluble: 'wir können mit den Ortsangaben ἐνέρτατον βένθος und μέση στροφάλιγξ keine klare Anschauung mit Sicherheit verbinden'. Von Arnim explains simply that while Strife was busy 'in a distant part of the world' Love took up 'a suitable basis of operations' for her counter-attack. Thus the fruits of this interpretation were lost.

Here it will be argued that, as Zeller saw, lines 3–4 do describe events *before* the elements begin to come together. This will be the time of total Strife. *At that time* Love is ἐν μέσηι στροφάλιγγι, in the middle of the elements.

In line with this, the ἐνέρτατον βένθος, it will be argued, is *the same place* as the μέση στροφάλιγξ: not the outermost, but the *innermost* depth. For Strife has pressed ever inwards from where it lay at the circumference of the Sphere, until now, at the time of its total power, it has reached the centre of the elements, where Love is confined. When the power of Love starts to increase, Strife will return to the circumference, ἐπ' ἔσχατα τέρματα κύκλου.

[1] ZN, p. 977. [2] (1902), pp. 23–4.
[3] This interpretation is examined more fully pp. 158 ff. below.
[4] ZN, p. 977. [5] Pp. 975 n. 4 and 1028 n. 4.

The choice between this interpretation and the usual one depends on the description of time and place in the opening lines of the fragment.

Time. Does οὐκ ἄφαρ, ἀλλὰ θελημά qualify all the preceding verbs, ἵκετο, γένηται, συνέρχεται, so that they all in effect describe the formation of the Sphere? Or does that phrase qualify only συνέρχεται, so that ἵκετο and γένηται describe events before the elements begin to come together?

Place. Does ἐνέρτατον βένθος mean the outermost depth, the same as ἔσχατα τέρματα κύκλου, and so describe Strife's position during the Sphere? Or does it mean the innermost depth, the same as μέση στροφάλιγξ, and so describe Strife's position when it is furthest removed from the circumference, and its power is at its height?

FRAGMENT 35. TIME

'When Strife *reached*, ἵκετο, the ἐνέρτατον βένθος (then) things come together, συνέρχεται' clearly indicates two successive actions. Strife must have arrived at the ἐνέρτατον βένθος before things come together.

If we now add 'not at once, but gradually', this should affect only συνέρχεται. It strains the Greek to read back 'not at once, but gradually' into ἵκετο. For συνέρχεται, by tense and meaning, is a process that can plausibly be said to take place not at once but gradually. Ἵκετο is a single completed action. It is completed before συνέρχεται, and completed it should remain, no matter for how long the process described in συνέρχεται may then be said to continue.

There are two disputed points connected with this time sequence: γένηται and ἐν τῆι δή.

1. γένηται. The aorist subjunctive regularly has the sense of an English perfect when followed in this way by a present tense.[1] The time sequence will then be no less clear than with ἵκετο. 'When Love has come to be in the middle, (then) things come together.' Love's arrival at the centre, like Strife's arrival at the ἐνέρτατον βένθος, will remain a completed action, no matter for how long the process of coming together may then be said to continue.

[1] See Goodwin, *Syntax of the moods and tenses of the Greek verb*, sect. 90.

But γένηται has aroused suspicion because of the change of mood from ἵκετο within the same clause, from Sturz onwards.[1] There have therefore been several attempts at emendation. Petersen proposed στροφαδὶ γεγένηται.[2] This was improved by Wilamowitz, who read γέγακε and explained γένηται as the rationalization of an unmetrical gloss, γεγένηται.[3] More recently Groningen has proposed ἐν δὲ μέσῃι Φιλότης γένετο στροφάλιγγι.[4]

Wilamowitz's γέγακε depends on the occurrence in Pindar of γεγάκειν, and the existence implied thereby of γέγακα.[5] It might be argued that the line should be emended to γεγάκει, formed directly as a present from Pindar's γεγάκειν. This would be the same in form as a pluperfect formed without augment from γέγακα and would therefore still be liable, it might be argued, to be glossed as γεγένηται.

None of the earlier emendations, γεγένηται, γέγακε or γένετο, would disturb our time sequence. Γεγάκει as a present would somewhat weaken the time sequence we have argued for, since it would leave the priority of the temporal clause to depend on ἵκετο.

In fact, however, there is no need for any emendation.

Against Wilamowitz's explanation of ⟨γε⟩γένηται there is the important consideration that γένηται cannot easily be explained

[1] P. 576. [2] (1837), col. 163. [3] *Hermes*, 65 (1930), 248–9.

[4] *La composition littéraire archaïque grecque, procédés et réalisations*, in *Verhandelingen der Koninklijke Nederlandse Akademie van Wetenschappen, Afdeling Letterkunde*, n.r. deel 65 (1958), no. 2, p. 216 n. 2.

[5] *Ol.* 6. 49, cf. Schwyzer, *Griechische Grammatik*, vol. 1, p. 364. Hesychius has γεγακώς, *s.v.* Γεγάκασι in fr. 23. 10 is Diels' emendation for the supposedly unmetrical γεγάασι. Diels' emendation has been challenged by Thomas, *Sprachliche Untersuchungen zu Empedokles*, unpublished dissertation of the University of Leipzig, 1924, p. 8, on the ground that γεγάκειν, a perfect stem with present endings, would not yield a plural, cf. Chantraine, *Histoire du parfait grec* (Paris, 1927), pp. 191–5, and Schwyzer, vol. 1, p. 767 n. 9. This objection will not apply if we allow the implied existence of a form γέγακα. Thomas attempts to defend the manuscript reading with the quantities γεγᾰᾱσι, demanded by the metre of fr. 23, for the usual γεγᾱᾱσι, as in fr. 71. 4, *Il.* 4. 325, Hes. *Op.* 108, cf. γεγᾶσι fr. 111. 1. For the shortening of the third person plural ending Thomas compares fr. 107. 1—add fr. 102—and verses from Xenophanes, Antimachus and Homer cited by Herodian, 2. 16. 17–29 Lentz. Less convincingly, for the lengthening of a stem syllable he compares *Il.* 3. 357 διά and 4. 155 φίλε, both unfortunately at the beginning of a verse.

as the result of a gloss. For purely verbal glosses were not common in Simplicius' text of Empedocles.[1]

On the positive side, the transition to the subjunctive, from ἵκετο to γένηται, adds considerably to the point of Empedocles' remarks. The subjunctive generalizes the events described by referring not to one cycle only, as ἵκετο does, but to the endless succession of world cycles. 'When Strife reached the ἐνέρτατον βένθος and when*ever* Love has come to be in the middle, then (on this one occasion as always) things come together.'

The same combination of general and particular is perhaps to be found in the verses that follow. Συνέρχεται may be simply a vivid present, describing precisely the same series of events as is later expressed in the past tenses, κεῖτο, ἕστηκε, ἔρυκε and so on. But perhaps more likely συνέρχεται follows γένηται in describing as a general rule what *always* happens when Love is confined to the centre of the world. The past tenses would then differ from συνέρχεται, in that they follow ἵκετο in describing one particular series of events, namely the world of increasing Love that last occurred.[2]

The combination of moods in ἵκετο and γένηται, which Wilamowitz finds 'undenkbar' and Groningen 'impossible', can be paralleled from Homer's similes. A simile which is introduced by a subjunctive may continue with a present or even an aorist indicative, e.g. *Il.* 4. 141 ff.:

> ὡς δ' ὅτε τίς τ' ἐλέφαντα γυνὴ φοίνικι μιήνῃ
> Μηονὶς ἠὲ Κάειρα, παρήϊον ἔμμεναι ἵπποις·
> κεῖται δ' ἐν θαλάμῳ, πολέες τέ μιν ἡρήσαντο
> ἱππῆες φορέειν· βασιλῆϊ δὲ κεῖται ἄγαλμα,
> ἀμφότερον κόσμος θ' ἵπποισι ἐλατῆρί τε κῦδος·
> τοῖοί τοι, etc.[3]

[1] The evidence for this point is necessarily detailed and is therefore presented separately in note 6, pp. 276–86 below.

[2] Aristotle shows that increasing Love was thought of as in the past, *De gen. et corr.* 334a7 πρότερον ἐπὶ τῆς φιλίας, see further pp. 174–5 below.

A different explanation of the combination of tenses is given by Groningen (1958), p. 216, who however misunderstands ἐνέρτατον βένθος and who seems confused over the place of the fragment in the world cycle.

[3] See Goodwin, *Moods and tenses*, sect. 547–9. Goodwin quotes also *Il.* 16. 297ff. and 21. 522ff. (In this second case the manuscripts also give ἱκάνει for ἵκηται.) See also *Il.* 18. 207ff.

The explanation is basically the same as for fr. 35. Homer starts by describing a common event, which is thought of as happening many times. The indicative transfers the description to a particular instance. The gain in immediacy and therefore in vividness is obvious. The distinction that Homer moves from the general to the particular, and Empedocles from the particular to the general, need not be crucial. It is natural that in the elaboration of his metaphor the Homeric writer should want to slip from the general to the particular. It is equally natural that Empedocles should want to extend his single event towards a universal law.

Elsewhere, Goodwin quotes examples of a change in mood between the optative and indicative:[1]

Xenophon, *Ages.* 11. 3: ἐμίσει οὐκ εἴ τις κακῶς πάσχων ἠμύνετο, ἀλλ' εἴ τις εὐεργετούμενος ἀχάριστος φαίνοιτο.

Xenophon, *An.* 1. 9. 27: ὅπου δὲ χιλὸς σπάνιος πάνυ εἴη, αὐτὸς δ' ἐδύνατο παρασκευάσασθαι . . ., διαπέμπων ἐκέλευε τοὺς φίλους . . .[2]

Bayfield explains these indicatives as adjectival: εἴ τις . . . ἠμύνετο equals τὸν ἀμυνόμενον while the second means ⟨εἰ τόπος εἴη⟩ ὅπου αὐτὸς ἐδύνατο.[3]

This does not go deep enough. Essentially the reason for the transition appears to be the same as in fr. 35 and in Homer's similes: it is a transition from general and indefinite to particular, or *vice versa.*

'Εδύνατο describes a particular instance of εἴη. The action of ἐκέλευε is not regarded as flowing from the concurrence of two independent and indefinite verbs, εἴη and δύναιτο. Instead, ἐδύνατο is subordinated to εἴη in the sense that 'was able' is treated as a particular and therefore a definite occurrence of σπάνιος εἴη. 'If ever at any time there *might* happen to be . . . and if on any one such occasion he *was* able . . ., then he ordered . . .'

Similarly ἠμύνετο is treated as a likely and so as an actual occurrence, which would cause no special reaction on the king's part. Φαίνοιτο on the other hand by being hypothetical and

[1] Sect. 467 and 534.

[2] ἐδύνατο C^2 et rel. codd.: Hude, *BT* 1931. δύναιτο C^1: Marchant, *OCT* 1920; Masqueray, Budé 1930. The textual difference is of course slight. But εἴη provides an obvious motive for the change to δύναιτο.

[3] *C.R.* 4 (1890), 202–3.

indefinite makes ingratitude appear an unlikely and an unnatural occurrence, and so increases the motive for hatred. Self-defence is seen as a fact. Ingratitude is a shocking possibility. 'His hatred was roused, not if someone defended himself...but if anyone should ever appear...'

It is possible that a change of mood similar to fr. 35 and modelled on Homer's similes is to be found in fr. 100. 16–18: ὅθ' ὕδωρ μὲν ἔχηι...αἰθὴρ δέ...ἐρύκει. But there are two disadvantages to using this fragment as confirmation of our interpretation of fr. 35. 'Ερύκει can easily be emended to ἐρύκηι.[1] Alternatively, αἰθὴρ δέ may introduce the main clause. Δέ used thus, following μέν in a subordinate clause, is fairly common.[2]

We may note that the omission of ἄν with the subjunctive in fr. 35 is for verse entirely acceptable. There are seven temporal subjunctives in fr. 100 (for Karsten's emendation of line 8 to match line 25 may be taken as certain): and only once, line 6, is there an ἄν.[3]

2. 'Εν τῆι δή, place not time, is something of a surprise. Bergk proposed ἔνθ' ἤδη,[4] adopted by Zeller.[5] It is true that we expect to hear an answering 'then', and apart from ἐν τῆι δή there are some corruptions in the manuscripts: ἐν τῇ ἡ δέ, ἐν τῆ δί, ἐν τηδί.[6]

Bergk's emendation would in fact strengthen our time sequence. But again there is really no need for emendation. The *place* where the elements come together is important. For we shall argue in a

[1] So Diels, *Fragm. der Vors.* 3rd edn (1912), *ad loc.*

[2] See Denniston, *Greek Particles*, p. 379.

[3] For the omission of ἄν in indefinite clauses generally see Schwyzer, *Griechische Grammatik*, vol. 2, pp. 312–13 and 648–61. For statistics from Homer, see Howorth, *C.Q.* n.s. 5 (1955), 75–6; from the tragedians, Clapp, *T.A.P.A.* 22 (1891), 88–91. On Herodotus, see Brackett, *Proceedings of the American Academy of Arts and Sciences* 41 (1905–6), 181–8.

Specifically for ἐπεί see Monro, *Homeric grammar* (2nd edn, Oxford, 1891), sect. 296, who quotes *Il.* 11. 478, 15. 363 and 680, *Od.* 20. 86. There are some variations in the manuscripts, but the relevant readings are those given by Allen. See also Sophocles, *Ant.* 1025, *Oed. Col.* 1225, and Herodotus, 8. 223. This passage from Herodotus is emended to include ἄν by Brackett, *op. cit.*, and earlier by Krüger, in his edition of Herodotus, Berlin, 1855–6.

[4] (1842), col. 1003, reprinted (1886), vol. 2, pp. 47–8.

[5] ZN, p. 977 n. 2.

[6] Simpl. *Phys.* 32. 15; *De caelo* 529. 5, 587. 11. Kranz's emendation, ἐν τῶι δή, DK 5th edition (1934) onwards, being further from the manuscripts, has no advantage over Bergk.

moment (pp. 118–19) that ἐν τῆι δή refers to the centre of the whirl – to inside the earth – where at the beginning of her cosmogony Love mingles the elements to form animal parts. Thus ἐν τῆι δή makes surprisingly good sense if it is an invention or a chance corruption. The lack of an answering 'then' does not effectively weaken the clear time sequence.

Conceivably ἐν τῆι δή for the similar sounding ἔνθ' ἤδη is a deliberate trick. We supply ἔνθ' ἤδη from the inner ear, and in fact we hear ἐν τῆι δή. Empedocles has got two words for the price of one.

FRAGMENT 35. PLACE

Ἐνέρτατον βένθος was taken to mean the same as ἔσχατα τέρματα κύκλου right from the start by Sturz, who is followed by most other scholars.[1]

Petersen in 1837 was one exception. He took ἐνέρτατον βένθος to mean the centre. But his thesis was extravagant in other ways, and involved taking fr. 35 to describe increasing Strife. For this he has been rightly ignored.[2]

Burnet is a curious case. He began by writing, in the first edition of *Early Greek philosophy*, that 'the "lowest depth" is not, as might be supposed, the centre; but is the same thing as the "extreme boundary"'.[3] Since therefore Strife is at the extreme boundary in fr. 35. 3–5, Burnet presumably applies these verses to the Sphere (cf. p. 106 above). Together with this Burnet adopted the normal view that Love is driven outside when Strife prevails, just as Strife is outside when Love prevails.[4] But a few years after

[1] Sturz, pp. 576–7, is followed without hesitation by Brandis, *Geschichte der Entwickelungen der griechischen Philosophie* etc. (Berlin, 1862), vol. 1, p. 111 n. 3, cf. (1835), p. 200; Karsten; Mullach; Freeman (1946), p. 186; and Boussoulas, 'Essai sur la structure du mélange dans la pensée présocratique, Empédocle', *Revue de Métaphysique et de Morale* [63] (1958), p. 142 n. 6; and with some reluctance by Raven (1957), pp. 347–8.

[2] In an earlier work Petersen appears to be simply inconsistent, *Philologisch-historische Studien auf dem Akademischen Gymnasium in Hamburg* (Hamburg, 1832), sect. 1. At one point, p. 27, he writes of 'Hass oder Feindschaft, in der untersten Tiefe, der Mitte des Sphairos'. But later, p. 30, he writes of Strife being 'an dessen (*sc.* the Sphere's) äusserster Grenze, d. h. wohl unterste Tiefe'. This later sentence evidently equates ἐνέρτατον βένθος and ἔσχατα τέρματα κύκλου in the usual way.

[3] *EGP*, 1st edn 1892, p. 226 n. 65.

[4] *EGP*, pp. 248 and 252 in the 1st edn. Cf. p. 104 n. 1 above.

repeating in the second edition of the same work that Love is driven *outside* when Strife prevails, he described with some force in his other work, *Greek philosophy part 1*, how Love is driven to the *centre* of the divided elements when Strife prevails.[1] Since Love is in the centre in fr. 35. 3–5, these lines should now apply to total Strife. Is Strife therefore, when its power is at its height, still outside at the 'extreme boundary'? Or does ἐνέρτατον βένθος now mean the centre? Burnet does not say. But in the next edition of *Early Greek philosophy* he still writes that Love was driven outside when Strife prevailed.[2] This means that, since in fr. 35. 3–5 Love is in the centre, she is triumphant, and Strife at the ἐνέρτατον βένθος must again be at the 'extreme boundary'—though Burnet avoids repeating his note to this effect.

Burnet's *Greek philosophy part 1* has had some influence.[3] But the meaning of ἐνέρτατον βένθος has not been made clear. For example Munding still writes, 'Nur über die Topographie dieser δίνη (i.e. in fr. 35) bin ich mir im unklaren, und die Worte ἐπεὶ Νεῖκος ἐνέρτατον ἵκετο βένθος δίνης...kann ich nur in dem allgemeinen Sinn verstehen: "als der Hass seine Wirbelwirkung vollendet hatte", d. h. als die Trennung des vormals Vereinten vollkommen und der Hass endgültig Herr geworden war.'[4] Munding is answered by Pfligersdorffer, without any direct mention of ἐνέρτατον βένθος.[5]

As Burnet began by suspecting, the meaning of outermost boundary for ἐνέρτατον βένθος is highly questionable.

1. Ἐνέρτατος itself, to judge from L.S.J. and Stephanus, does not occur again except in two entries in Hesychius, and in a scholion on Homer as a variant reading offered by Zenodotus for ἐνέρτερος.[6] The related forms, ἔνεροι, (ἐ)νέρτερος and (ἔ)νερθε, most commonly refer to the underworld.[7] They do not appear to be

[1] *EGP*, 2nd edn 1908; pp. 270, 272, 280. *Greek philosophy part 1, Thales to Plato* (London, 1914), p. 73.

[2] *EGP*, 3rd edn 1920, reprinted posthumously as a 4th edn, 1930, pp. 234, 236, 242.

[3] References pp. 105 n. 5 above.

[4] (1954), p. 144. [5] (1959), p. 110 n. 2.

[6] Hesychius, *s.v.* ἐνέρτατον and νέρτατα: both entries are considered below. *Schol. in Hom. Il.* 5. 898 vol. 1, ed. Dindorf, Oxonii, 1875, and vol. 5, ed. Maass, Oxonii, 1887.

[7] See L.S.J. and Stephanus, *s.vv.*

used like ἔσχατος or like the Latin *profundus* to mean high as well as deep.[1]

One of the entries in Hesychius offers νέρτατα· ἔσχατα. But with the lack of other evidence this will not suffice to give to νέρτατος both meanings of ἔσχατος, high as well as deep.

The other entry in Hesychius gives ἐνέρτατον· κατώτατον. With Aristotle and after Aristotle κάτω was certainly used for the centre of the world, not for the circumference:

τὸ μὲν ἀπὸ τοῦ μέσου φερόμενον ἄνω λέγω φέρεσθαι, κάτω δὲ τὸ πρὸς τὸ μέσον.[2]

κάτω μέν ἐστιν τὸ κέντρον καὶ τὸ μέσον.[3]

The natural Latin equivalent for ἔνερος and ἐνέρτατος is *inferus* and *infimus* or *imus*. Like ἔνερος, *inferus* was used of the underworld.[4] *Infimus* and *imus* are used precisely, if somewhat self-consciously, of the centre of a sphere:

ut terra infimum teneat, Cicero, *De nat. deorum* 1. 103.
in medium locum mundi, qui est infimus, 2. 84.
id autem medium infimum in sphaera est, 2. 116.
medium mundi locum . . . qui est idem infimus in rotundo, *Tusc. disp.* 5. 69.
medium totius et imum, Manilius, 1. 170.
in sphaera uero hoc solum constat imum esse, quod medium est, Macrobius, *in somnium Scipionis* 1. 22. 4.

2. βάθος and βαθύς may mean deep or high according to one's position.[5] But there seems to be no instance of βένθος having the second sense.[6]

Ἐνέρτατον βένθος might perhaps be taken to mean the lowest part only of the circumference. But to have Strife accumulated underneath the Sphere would be astonishingly unsymmetrical, and is not what ἔσχατα τέρματα κύκλου points to.

We might possibly bring in metonymy—a last-ditch stand. The lowest part of the circumference is named for the whole. This is hardly likely.

[1] See L.S.J., *s.v.*, and Lewis and Short, *s.v.*
[2] Aristotle, *De caelo* 308a15–17, cf. b14–15.
[3] Simplicius, *Cat.* 148. 10.
[4] See Lewis and Short, *s.v.*
[5] See L.S.J. and Stephanus, *s.vv.*
[6] Page, in his edition of Euripides' *Medea* (Oxford, 1938), note on *v.* 1297, writes: 'βάθος can mean either depth or height, according to measurement up or down. βύθος, βένθος can only mean depth.'

Thus at the very least ἐνέρτατον βένθος is ambiguous. Certainly the more natural sense will be not the outermost height, but the innermost depth, i.e. the centre. 'Innermost depth' flows naturally from the normal meaning of both words.

Scholars have perhaps been led to misinterpret the meaning of ἐνέρτατον βένθος because they have formed the impression that in these lines ἐνέρτατον βένθος is contrasted to μέση στροφάλιγξ. For on reading ἐν δὲ μέσῃι . . ., the impression can be formed that one has read, or understood, ἐνέρτατον μέν . . . But the μέν and δέ do not in fact contrast place specifically. Empedocles first writes Νεῖκος μέν. The δέ is 'misplaced', in the sense that Empedocles does not write Φιλότης δέ. This is fairly obviously done in order to have the position of Love reflected in the order of words, μέσῃι Φιλότης στροφάλιγγι.

TIME AND PLACE: CONCLUSION

These two arguments from time and place support one another.

It was easy enough to suppose that ἐνέρτατον βένθος equalled ἔσχατα τέρματα κύκλου, if it was thought that lines 7 ff. did no more than repeat in slow motion all the events of lines 3–5. But 'outermost circumference' cannot be the meaning of ἐνέρτατον βένθος, if Strife arrived there *before* things begin to come gradually together. Strife cannot be moved further and further towards the outermost circumference, if that is where it was before it started. If it is to move towards the circumference, it must have *started* from the centre.

Conversely, if we accept the meaning of centre for ἐνέρτατον βένθος, then the time sequence must follow. If Strife is driven ἐπ' ἔσχατα τέρματα κύκλου as Love increases, then it must have arrived at the centre of the world *before* beginning its journey back to the circumference again.

Thus either argument implies the other. Together they determine the sense of the fragment. Lines 3–4 describe a time before the elements begin to come together, when Strife has reached the centre of the world. This must be the time of total Strife. Strife has reached the centre, because it has forced its way inwards from where it lay at the circumference of the Sphere. Love has

given way before advancing Strife and is now confined to the centre of the elements, ἐν μέσῃι στροφάλιγγι. Total Strife is followed by the gradual coming of all things together, lines 5 ff. Love now pushes Strife outwards to the circumference, ἐπ' ἔσχατα τέρματα κύκλου.

FRAGMENT 35. MINOR CONSIDERATIONS

There are a number of comparatively minor points in the fragment that confirm this interpretation.

1. It has been argued elsewhere that in line 15 the meaning of ζωρός is 'mixed', a derivation, perhaps an original one, from Homer's ζωρότερος, and that the sense of the line is thus, 'changing their ways, they (things or more specifically the elements) grew to be mixed, that before were unmixed'.[1] In line 14 'they grew to be mortal, that before were wont to be immortal'. Mortal thus corresponds to mixed. Immortal corresponds to unmixed. The point cannot be therefore that the elements are immortal when they are in the Sphere (though they may in a sense be 'immortal' then as well). In this context the elements are immortal when they are *un*mixed. The idea is probably that total separation would involve freedom from change, and that this is a kind of immortality. The elements become mortal again when they are mixed, because then they are subject to change, they '*perish* into one another'.[2]

Thus, however we interpret the opening of the fragment, lines 14–15 describe the transition from total Strife to increasing Love.

Now it is conceivable perhaps that Empedocles should have begun the fragment with a description of the Sphere, then recounted the events that lead to the Sphere, and finally, in lines 14–15, remind us of the stage of total separation that had preceded the events leading to the formation of the Sphere, that is the time when the elements had been separated and immortal. But this method of exposition would obviously be very confused. The sequence of thought is far clearer if lines 14–15 recapitulate the description given in the opening of the fragment. This will be so

[1] *C.R.* n.s. 15 (1965), 1–4, cf. p. 267 below.
[2] Fr. 26. 2 discussed pp. 314–16 and 320–1 below.

if lines 3–4 as well as lines 14–15 describe the transition of the elements from domination by Strife to the beginnings of domination by Love.

2. If lines 3–4 are to describe the Sphere, then μέση στροφάλιγξ should somehow include the whole of the world. Is this possible?

In itself, μέση στροφάλιγξ would not naturally mean the whole of the world apart from its outermost boundary. We might translate a little loosely, as does Burnet, when 'Love had *reached* to the centre of the whirl'.[1] This could imply that Love was already in possession of the rest of the Sphere. But this is not so plain and natural a sense of ἐν δὲ μέσῃι Φιλότης στροφάλιγγι γένηται as that Love was in the middle of the whirl, and nowhere else.

But if Love is in the middle of the whirl and nowhere else, and if Strife is at the outermost circumference, then there appears to be a kind of no man's land, not occupied by either Love or Strife, between the centre and the circumference. But it would be odd if there were a neutral area, for later Love follows as close as she can on the heels of Strife, line 12:

ὅσσον δ' αἰὲν ὑπεκπροθέοι (Strife), τόσον αἰὲν ἐπήιει (Love).

If on the other hand the μέση στροφάλιγξ and the ἐνέρτατον βένθος both describe the middle of the world, as they do on our interpretation, then we have Love closely hemmed in by Strife. That is as it should be.[2]

3. What does ἐν τῆι δή refer to?

On the usual view, whereby these lines describe the Sphere (cf. p. 106 above), the expression has been thought to refer to Love, e.g. by Sturz and Karsten.[3] Karsten compared fr. 21. 7–8:

ἐν δὲ Κότωι διάμορφα καὶ ἄνδιχα πάντα πέλονται,
σὺν δ' ἔβη ἐν Φιλότητι.

[1] *EGP ad loc.*, my italics.

[2] In arguing, here as earlier, p. 107, that the ἐνέρτατον βένθος and the μέση στροφάλιγξ are in effect the same place, we are not intending to suggest that Love is confined to a 'point' in the centre of the world. Presumably the 'innermost depth' would be reached as soon as Strife has penetrated the innermost boundary of earth and Love is wholly excluded from the elements.

[3] Also Raven (1957), p. 346. This interpretation appears to have the support of Simplicius, *De caelo* 587. 8–11.

Alternatively, it has been thought to refer to the whirl in a general way, as Bergk first suggested.[1] The phrase is still causing trouble. Munding writes, 'ἐν τῆι δή . . . gibt keinen Sinn, denn die Philotes (als materieller Punkt!) kann nicht gemeint sein'.[2] Munding appears to favour Bergk's emendation to ἔνθ' ἤδη (cf. p. 112 above).

The precise and most natural reference of ἐν τῆι δή would be not to Love, nor to the whirl in general, but to the middle of the whirl, ἐν τῆι (μέσηι στροφάλιγγι). This will be the more likely if ἐνέρτατον βένθος also means the centre: 'when Strife reached the centre, and Love has come to be in the centre, then *there* (*sc.* in the centre)...'

But when do things come together in the centre? Not when the Sphere is formed, as though working her way inwards Love finally succeeded in uniting the elements at the centre. Just the opposite seems to have been the case. Things come together in the centre of the world at the very beginning of increasing Love.

For there was no occasion to describe the formation of the heavens after total Strife.[3] Therefore the first things to have been formed as Love's power increased will presumably have been living creatures, as indeed our fragment implies, χεῖτ' ἔθνεα μυρία θνητῶν. These we are told were formed under increasing Love from parts made inside the earth.[4] And the earth must have been at the centre of the world under total Strife.[5] Therefore the centre of the world, and so the μέση στροφάλιγξ, was the scene of activity at the *beginning* of Love's world.

Thus if we refer ἐν τῆι δή to the centre of the whirl—and that is its most natural reference—the whole line will have to refer not to the Sphere, to the *final* coming of all things together, but to the *first* coming of all things together: to the formation of animal parts inside the earth immediately after total Strife.

4. A slight point: is the mention of a whirl likely if the lines describe the transition from the last moments of increasing Love to the Sphere which is at rest? The whirl must be on the point of

[1] (1842), col. 1003, reprinted (1886), vol. 2, p. 47. Also Burnet, *EGP*, p. 211.
[2] (1954), p. 144 n. 5.
[3] Arist. *De caelo* 301 a 15–16 discussed pp. 175–7 below. Cf. p. 10 above.
[4] References pp. 200–3 below. [5] See pp. 149 and 155 below.

extinction. And if the thesis of chapter 3 was correct (pp. 46–54 above), it will have to be a very slow whirl.

It is true that στροφάλιγξ and δῖνος – though apparently not δίνη – were used simply of shape: a round cheese, a round threshing floor, a goblet (see L.S.J., *s.vv.*). Perhaps there need be little emphasis on movement.

But the use of both words here, and the known importance of the δίνη in Empedocles, do make it look as though the whirling is important.[1] If the whirling is important, then total Strife is a more appropriate time than total Love. The elements were moving under total Strife, and faster perhaps than at any other time.[2]

INDIRECT EVIDENCE

Love's position in the centre of the universe can be related to evidence from Anatolius and from Plato's *Politicus*.

ANATOLIUS

On our interpretation of fr. 35, Love expands and contracts to and from the centre of the universe. Another example of a divine force inhabiting the centre of the world is afforded by the Pythagoreans. The branch of the school which placed the central fire at the heart of a geocentric universe will bring the parallel closer to Empedocles.[3] The activity of this divine force inside the earth, as described by Simplicius, is reminiscent of Love's formation of animal parts inside the earth after the time of total Strife: οἱ δὲ γνησιώτερον αὐτῶν (Pythagorean ideas) μετασχόντες πῦρ μὲν ἐν

[1] Some references for the *dine* are given above, pp. 51–3: add *Phaedo* 99B.

[2] There is no evidence for Bignone's assertion, p. 429, cf. p. 557 n. 1, which is quite often repeated by other scholars in one form or another, that the whirl in fr. 35 is not the same as the whirl originally produced in Strife's cosmogony. This would be a necessary corollary of the view (which Bignone does not hold) that the elements under total Strife were at rest, or that their condition was not described. But if, as we have argued, the elements under total Strife never ceased to move, then there will presumably have been only one whirl from Sphere to Sphere. This whirl will in a sense have had opposite effects, as Strife's power increases and as Love's power increases, see p. 264 below. But this is not to say that there will have been *two* whirls. Lucretius' *noua tempestas*, 5. 434, does not imply that there was a fresh whirl under increasing Strife, cf. pp. 153–4 and 270–1 below.

[3] Simpl. *De caelo* 512. 9–12, cf. Arist. *De caelo* 293a27–b4.

τῶι μέσωι λέγουσι τὴν δημιουργικὴν δύναμιν, τὴν ἐκ μέσου πᾶσαν τὴν γῆν ζωιογονοῦσαν.[1]

One late source, Anatolius, makes explicit the connection between the Pythagoreans' central fire and a μοναδικὴ φύσις in Empedocles:

πρὸς τούτοις ἔλεγον (the Pythagoreans) περὶ τὸ μέσον τῶν τεσσάρων στοιχείων κεῖσθαί τινα ἑναδικὸν διάπυρον κύβον, οὗ τὴν μεσότητα τῆς θέσεως καὶ Ὅμηρον εἰδέναι λέγοντα

τόσσον ἔνερθ' Ἀΐδαο ὅσον οὐρανός ἐστ' ἀπὸ γαίης.

ἐοίκασι δὲ κατά γε τοῦτο κατηκολουθηκέναι τοῖς Πυθαγορικοῖς οἵ τε περὶ Ἐμπεδοκλέα καὶ Παρμενίδην καὶ σχεδὸν οἱ πλεῖστοι τῶν πάλαι σοφῶν, φάμενοι τὴν μοναδικὴν φύσιν ἑστίας τρόπον ἐν μέσωι ἱδρύσθαι καὶ διὰ τὸ ἰσόρροπον φυλάσσειν τὴν αὐτὴν ἕδραν, καὶ δὴ Εὐριπίδης ὡς Ἀναξαγόρου γενόμενος μαθητὴς οὕτω τῆς γῆς μνησθείς,

Ἑστίαν δέ σ' οἱ σοφοὶ βροτῶν νομίζουσιν.[2]

What was Empedocles' μοναδικὴ φύσις? Zeller supposes that it is Love at the centre of the whirl in fr. 35.[3] Guthrie supposes that it is fire, on the ground that Empedocles has fire inside the earth, fr. 52, and that it has a generative function, fr. 62, like the Pythagoreans' central fire described by Simplicius.[4] Love is perhaps the more likely candidate, since fire can have been inside the earth for only part of the time, whereas Love, if our reconstruction is correct, will have been there always.

Anatolius of course may not be a reliable source. His trustworthiness in the present instance is not enhanced by the vast and stereotyped generalization—καὶ σχεδὸν οἱ πλεῖστοι τῶν πάλαι σοφῶν—and by the somewhat casual nature of his reference to Empedocles. Nonetheless he had some grounds for including Parmenides.[5] His reference to Empedocles likewise may have been more than a mere guess.

[1] Simpl. *De caelo* 512. 9–12. For references to Love's formation of animal parts, see pp. 200–3 below. The Pythagoreans described as γνησιώτερον αὐτῶν μετασχόντες may be a sect older than Philolaus, which is the opinion of Richardson, *C.Q.* 20 (1926), 118ff., Cornford, *Plato's cosmology* (London, 1937), pp. 126ff., and Guthrie (1962), pp. 232–3, and 290–3. If not, the point will be that they adapted Philolaus' central fire to the old geocentric system, so Zeller, ZN, p. 530.

[2] *De decade* p. 30 Heiberg, copied by [Iamblichus], *Theol. arith.* p. 6. 11–20 de Falco (DK 28A44).

[3] ZN, p. 975 n. 4. [4] (1962), pp. 292–3, following Richardson, p. 121.

[5] Fr. 12. 3; cf. Simpl. *Phys.* 34. 14–16.

PLATO

In Plato's *Politicus* we again seem to find an indication that Love was at the centre of the divided elements when we are told that god retreats εἰς τὴν αὐτοῦ περιωπήν 272 E.[1]

In Plato's myth god retreats to his περιωπή when the world has exhausted its potentialities for good and must be left to recoil upon itself. This, if we try to correlate Empedocles' scheme exactly, would make us think of the beginning of increasing Strife. But part of Plato's rejection of δύο τινὲ θεὼ φρονοῦντε ἑαυτοῖς ἐναντία, 270 A, is that god (=Love) plays no part at all in the world of increasing evil. The course of the world at that time is governed by its εἱμαρμένη τε καὶ σύμφυτος ἐπιθυμία, 272 E, and by what it can remember of the father's teaching, 273 B. God does not intervene again until the world's imperfect nature has brought it to the brink of dissolution into 'a boundless sea of unlikeness', 273 D–E. Thus god's position at the περιωπή, though it lasts for what in Empedocles' scheme would be the whole world of increasing Strife, is in fact equivalent to the position of Love when she has completely withdrawn herself from the elements under total Strife.[2]

Was the περιωπή the centre? The *Politicus* itself gives no indication. Cornford leaves the question open.[3] But the parallel passage in the *Critias* has more in it than Cornford brings out. In the *Critias*, 121 C, Zeus summons the other gods to their 'most honourable home' in the centre of the universe from where they can see all that is going on: συνήγειρεν θεοὺς πάντας εἰς τὴν τιμιωτάτην αὐτῶν οἴκησιν, ἣ δὴ κατὰ μέσον παντὸς τοῦ κόσμου βεβηκυῖα καθορᾶι πάντα ὅσα γενέσεως μετείληφεν. Here, as in the very name of the περιωπή in the *Politicus*, is the idea of cosmic vision. Further, in the *Critias*, as apparently in the *Politicus*, 272 E 6–273 A 1, the supreme god is followed to his retreat by the

[1] The context is quoted pp. 90–2 above. For Plato's use of Empedocles in the *Politicus* myth see pp. 94–8 above.

[2] The motive for Plato's remodelling of Empedocles' myth in this way has already been elaborated, p. 95. The comparison should be noted with the Platonizing interpretation of Empedocles, whereby the sensible world is placed under the exclusive domination of Strife, pp. 100–1 above.

[3] *Plato's cosmology*, p. 128.

other gods. Finally, the situation, the increase of evil in the world, is the same in both dialogues. It is therefore not too tenuous an argument that the περιωπή like the τιμιωτάτη οἴκησις will have been in the centre of the world.

Pythagorean influence adds to the probability that the περιωπή is in the centre of the world. Pythagorean titles for the central fire do not bring out the idea of vision in the clear way that Plato does. But Plato's 'house' of the gods, in the *Critias* and in the *Phaedrus*, 247A, is fairly certainly Pythagorean.[1] This means that the centrality of Plato's house of the gods in the *Critias* is not a random element, and so makes the more likely its reappearance in the *Politicus*. Even in itself, the idea of a περιωπή is perhaps not far removed from a πύργος or τύρσις, a φυλακή or φρουρά, all of which are Pythagorean terms.[2]

Pythagorean example very largely disposes of the objection that Plato's god could not see all round him if he was in the centre of the earth (the universe of the *Critias* and the *Politicus* is presumably geocentric). The Pythagoreans did not shrink from having god's tower inside the earth.[3] Their influence, one feels, would have outweighed in Plato's mind the practical difficulty.

The probability therefore is that the περιωπή, like the gods' 'most honourable dwelling place' in the *Critias*, and like the Pythagorean house of the gods, is in the centre of the world.

But did the Pythagoreans determine the position of the περιωπή, or did Empedocles? The *Politicus* myth has a very high Empedoclean content, as we have observed (pp. 94–8). But the Pythagorean influence we have noted makes it undesirable to use the probably central position of the περιωπή as an argument for Love's position in Empedocles. Rather should we reverse the argument. If we accept the evidence of fr. 35 for Love's position, then the probability of Plato's περιωπή being in the centre becomes a fair certainty.

[1] Aet. 2. 7. 7 (DK 44A16). Cf. also ἑστία here and in 3. 11. 3 (DK 44A17) and in the *Phaedrus*.

[2] Pindar, *Ol.* 2. 70; Arist. *De caelo* 293b3 and 9; Simpl. *De caelo* 512. 12–14; Proclus, *in Tim.* 3. 141. 12.

[3] As well as the passages last quoted from Aristotle and Simplicius see Proclus, *in Tim.* 3. 141. 11–13, 3. 143. 24–7, and context.

THE WORLD BREATH

Why did Empedocles station Love at the centre and Strife at the circumference of the universe?

One reason may have been simply the desire for symmetry. Another reason may have been that movement at the centre of a whirl is slowest, and fastest at the circumference. Love we have seen reason to associate with rest, and Strife with speed and movement (pp. 50–3 and pp. 101–3).

A different reason may have been the influence of earlier thinkers. Aristotle remarks that the arguments for a central fire, on one version of the theory, were speculative, not empirical: τῶι γὰρ τιμιωτάτωι οἴονται προσήκειν τὴν τιμιωτάτην ὑπάρχειν χώραν, εἶναι δὲ πῦρ μὲν γῆς τιμιώτερον, τὸ δὲ πέρας τοῦ μεταξύ, τὸ δ' ἔσχατον καὶ τὸ μέσον πέρας.[1] We have already noted a possible connection between Love's position and a central Pythagorean fire. Possibly the equivalent 'honourableness' of the circumference helped to determine Strife's position.

Pythagorean ideas of a world breath may also have attracted Empedocles.[2]

The idea of a cosmic breath in Empedocles is not a new one. It has been mooted by Tannery,[3] by Mugler,[4] and more clearly by Burnet.[5] Mugler's description is particularly unfortunate: 'Tout se passe donc comme si...le monde aspirait la substance de la Haine qui l'entoure en expirant *en même temps* celle de l'Amour qu'il contient en son intérieur' (my italics). This makes the world perform the difficult feat of breathing in and out at the same time. But inadvertently Mugler shows that it is only with Love at the centre that cosmic breathing is possible.[6]

Consider first Empedocles' careful account of breathing in fr. 100. Blood draws back into the interior of the body when we

[1] *De caelo* 293a30–3. Cornford and Richardson associate this theory with Pythagoreans, as cited p. 121 n. 1 above.

[2] For Pythagorean world breath see Arist. *Phys.* 213b22–7 (DK 58B30); Simpl. *Phys.* 651. 26–9; Arist. *ap.* Stob. *Ecl.* 1. 18. 1c (DK 58B30) = fr. 201 Rose; Aet. 2. 9. 1 (not in DK).

[3] *Science hellène*, pp. 319, 324, cf. 315–16.

[4] (1953), p. 34. [5] (1914), p. 73, cf. *EGP*, pp. 231–2.

[6] Love is in the centre in Burnet, but cf. pp. 113–14 above, and in Tannery, though he does not develop the point, cf. p. 105 above.

breathe in, and rushes forward when we breathe out. Air pours into the body as the blood retreats, and is then pushed out again when the blood rushes forward.

This is parallel to what happens in the cosmos if we take Love to represent the blood—a mixture we may remember of all four elements, fr. 98—and Strife to represent air. Love is driven into the centre when the world 'breathes in' Strife. Strife is 'breathed out' as Love advances from the centre and pushes Strife back to the circumference. In this way the worlds of increasing Strife and increasing Love would become halves of a single gigantic breath, with a natural pause for rest when the world has 'breathed out' during the Sphere.

Strife we have equated with cosmic 'air'. This seems justifiable, although air proper has now become one of the ῥιζώματα. For Strife shares with the Pythagoreans' air or void a position outside the universe, and a separative cosmogonical function.[1] Strife could well have been retained as the substance of the cosmic breath, although it was no longer identified with normal air.

Apart however from its intrinsic plausibility, there is no direct evidence that Empedocles did make the world breathe in the way we have described.

Certainly Empedocles carried a long way the idea of the animation of the universe. Everything, he says, fr. 110. 10, φρόνησιν ἔχειν καὶ νώματος αἶσαν, probably because 'everything' has a piece of Love. Leaves, therefore, hairs, feathers and scales are the same (fr. 82), arms are branches (frr. 29. 1, 134. 2), and so on (cf. frr. 55, 79, 99). It is significant that earth is not simply mother earth, as she is throughout antiquity. Empedocles' earth produced men in the south and women in the north in the same way as hot parts of the womb produce males and the colder parts females.[2]

But these examples show nothing more than the intuition of a unity in widely different kinds of living things. The universe as a whole is not said, in the evidence that we have, to be endowed

[1] For this description of Pythagorean air or void see the passage from Aristotle's *Physics* quoted p. 124 n. 2 above.

[2] Aet. 5. 7. 1 (DK 31 A 81). Fr. 65; Arist. *De gen. anim.* 764a 1–6 (DK 31 A 81). Cf. fr. 66, Censorinus 4. 7–8, discussed below, pp. 217–18, and Plato, *Menexenus* 238 A.

with a life of its own. That idea does seem to appear in Aristotle's comparison of the cosmic cycle with a child who becomes a man and then becomes a child again (the man presumably equals the Sphere).[1] But this is fairly certainly Aristotle's own invention. The comparison is used again for polemical purposes.[2] It has probably been taken from Plato's parody of reversed world periods in the *Politicus* myth, where old men turn into babies and so on.[3]

Thus Empedocles' world breath has to be left as a conjecture.

An interesting point is that if Empedocles' world did breathe, it will have had to breathe in *and out* because of the repetition of worlds in the cosmic cycle. Three of our four descriptions of the Pythagorean world breath refer to breathing in only, namely Aristotle, Simplicius and Stobaeus, as cited above (p. 124 n. 2). Aetius alone speaks of breathing out: οἱ μὲν ἀπὸ Πυθαγόρου ἐκτὸς εἶναι τοῦ κόσμου κενὸν εἰς ὃ ἀναπνεῖ ὁ κόσμος καὶ ἐξ οὗ.[4]

If Empedocles introduced the idea of repeated worlds, then it may have been he who introduced the idea of breathing in *and out*.[5]

[1] *De caelo* 280a14–15. For the attribution to Empedocles see a17–19 and 279b14–17.

[2] *Met.* α' 994a22–b3.

[3] References p. 94 above.

[4] 2.9.1 (not in DK). A supposedly Orphic verse speaks of the soul 'breathing out' evil, fr. 229 Kern,

κύκλου τ' ἂν λῆξαι καὶ ἀναπνεῦσαι κακότητος.

But this is the soul, not the world; and it is impossible to know how literal is the connotation of ἀναπνεῦσαι here.

[5] On repeated worlds in Anaximander and Heraclitus cf. p. 38 above. Repeated cycles of history are attributed to the Pythagoreans by Eudemus, fr. 88 Wehrli (DK 58B34), and to Pythagoras himself by Dicaearchus, *ap.* Porphyry, *Vita Pyth.* 18–19 (DK 14A8*a*). These accounts have been interpreted as referring to repeated worlds by Taylor, *A commentary on Plato's Timaeus* (Oxford, 1928), p. 87. Alternatively, they have been claimed as part of the doctrine of transmigration, as a theory of repeated individual lives within an everlasting cosmos, by Guthrie (1962), pp. 281–2.

Professor Guthrie is apparently inclined to accept Dicaearchus' estimate that the theory in question goes back to Pythagoras himself. But Dicaearchus —if Porphyry is still quoting him—could hardly be infallible on so obscure a point. Therefore even if repeated worlds are intended, the theory may not ante-date Empedocles.

CHAPTER 6

THE SHAPE OF LOVE AND STRIFE

INTRODUCTION

In what shape were Love and Strife arranged during the extreme periods of total Love and total Strife? How should we visualize the action of Love and Strife during the worlds of increasing Love and increasing Strife?

1. During the Sphere, according to Cornford, Love should be visualized spread evenly through all the elements.[1] No evidence is offered for this view, although it obviously has considerable intrinsic plausibility.

Precisely the reverse picture is suggested by Long, who speaks of the Sphere as 'encased in an envelope of Love'.[2] Long perhaps intends to paraphrase fr. 27. 3,

οὕτως Ἁρμονίης πυκινῶι κρυφῶι ἐστήρικται.[3]

But κρυφός need convey no specifically spatial image. The point of κρυφῶι is explained in the first two lines of the fragment. During the Sphere neither sun nor earth nor sea is visible in the form in which we know them now. For they have been 'bound fast' by Love (ἐστήρικται, cf. pp. 21–2 above) who *hides*—this is the point of κρυφῶι—their various visible properties, which can be manifested only by the movement and partial separation that will be the result of Strife's invasion of the Sphere.[4] But *how* Love hides the elements, by what spatial disposition of herself, the fragment does not tell us.

2. Strife, according to Tannery, we must picture during the Sphere as 'enveloppant celui-ci (the Sphere) d'une couche vide

[1] (1912), p. 234.

[2] 'The unity of Empedocles' thought', *A.J.P.* 70 (1949), 151 and 157.

[3] For the accent of κρυφός see p. 20 n. 1 above.

[4] Of course under *total* Strife the visible properties of the elements will again be lost. But this does not affect the point. The visible properties of the elements, as we know them now, are 'hidden' under total Strife as well as under total Love, see pp. 147–54 below.

de tout élément corporel'.[1] Tannery is followed by Burnet and Diès. Burnet wrote: 'Hate, another corporeal substance, is outside, no doubt surrounding the Sphere in a circular layer. This is quite capable of being represented in a spatial perception, as all early Greek philosophical theories are.'[2] Diès wrote somewhat less precisely: 'La haine, rejetée à l'extrême limite du cercle, enveloppe extérieurement le globe divin comme une atmosphère impuissante.'[3] Millerd objected that Burnet was pushing Empedocles' ideas too far: 'Strife was banished. Whether he was pictured as taking any specific form, we have no means of knowing... It is true that Empedocles shared the tendency of early Greek thought to represent everything in a spatial perception, but even the clear light of a Greek imagination does not define all outlines, and this may have been one of the points left in shadow.'[4] Burnet then expressed himself more cautiously: 'Strife surrounds or encompasses it (the Sphere) on every side just as the Boundless encompasses the world in earlier systems.'[5] Nonetheless Burnet's earlier view is followed by Bignone[6] and by Mugler.[7] No clear argument is offered for the view at any stage.

3. At the time of total Strife, according to Tannery, 'nous ne pouvons guère nous représenter la Philotès...que comme divisée en lambeaux au sein de la confusion générale, et emportée, elle aussi, dans les mouvements capricieux dus au Neîkos'.[8] No evidence is offered.

4. Strife, according to Mugler, was arranged at the time of its total power in concentric spheres between the elements: four layers of Strife in the diagram, three layers in the text.[9] Again no evidence is offered.

5. The action of Love and Strife in the worlds of partial mixture and partial separation we are to imagine, according to Millerd, as a toing and froing movement, 'rather after the analogy of the battlefield, wherein one point after another is lost for a considerable time to the enemy, and then regained, perhaps only to be

[1] *Science hellène*, p. 319, cf. p. 327.
[2] *EGP*, 1st edn, pp. 251–2.
[3] (1909), p. 92.
[4] (1908), p. 60.
[5] *EGP*, 2nd edn, p. 272 = 3rd edn and reprint, p. 236.
[6] P. 405.
[7] (1953), pp. 33 and 42.
[8] *Science hellène*, p. 322.
[9] (1953), pp. 40–1.

lost again'.[1] No adequate evidence is offered for this picture (cf. p. 142 below). Millerd's words appear to be based in fact on some remarks of Simplicius, which have no critical value, as we shall see (pp. 142–3).

Were there no direct evidence, we should perhaps favour a symmetrical position for Love and Strife. During the Sphere, for example, Love would be likely to be spread throughout the elements in order to keep them thoroughly mingled, as Cornford supposed. Strife at that time would be likely to be arranged, as Burnet first thought, in an even spherical layer. For an even spherical layer is the only symmetrical position a fluid body can adopt on the surface of a sphere; and we have already remarked (pp. 71–4) that Empedocles appears to have visualized the main temporal and spatial features of the cosmic cycle with conscious clarity. Millerd exaggerates when she says that on almost *every* point Empedocles' thought proves at root to be loose and ill-defined.[2]

As it is, fr. 17. 19–20 probably affords evidence of the shape in which Love and Strife were arranged in space. These verses have been variously interpreted. We shall argue that they describe Love equal (as it were to herself) in length and breadth, and so spread out in the form of a sphere; while Strife is said to be equally balanced in every direction because it surrounds Love in a spherical layer.

We shall further argue that these lines apply particularly but not exclusively to the Sphere. For fr. 35. 12–13 indicates that the transition from total Strife to total Love was seen as a regular process. We shall conclude therefore that Love and Strife will have maintained very roughly the shapes of respectively a solid and a hollow sphere throughout the cycle, while expanding and contracting as the power of each increases or declines.

[1] (1908), p. 46.

[2] The description of Strife as a fluid body is conjectural. Note however the suggestively 'fluid' language used of both forces in fr. 35. 12–13 quoted below, p. 142. We may perhaps compare Agathon's description of the god Ἔρως in the *Symposium* 196A as ὑγρὸς τὸ εἶδος and ὑγρᾶς ἰδέας, if the connotation is not simply a sexual one. Cf. Cornford's remarks on the way in which such forces as Love were visualized in primitive thought (1912), pp. 151–2 and 230–1.

FRAGMENT 17. 19–20

Νεῖκός τ' οὐλόμενον δίχα τῶν, ἀτάλαντον ἁπάντηι,
καὶ Φιλότης ἐν τοῖσιν, ἴση μῆκός τε πλάτος τε.[1]

EARLIER INTERPRETATIONS

These verses have given rise to a variety of interpretations.

1. Panzerbieter thought that Love and Strife were described respectively as equal in volume and equal in weight to the other elements. However, it is not clear whether Panzerbieter meant that Love as well as Strife was equal to each element singly, or to all the elements taken together.[2] Robin is equally imprecise.[3]

2. Burnet evidently thinks that Love and Strife are equal to each of the elements singly.[4] Tannery also supposes that Love is equal to each of the elements. But ἀτάλαντον Tannery takes to be in some way metaphorical.[5] This idea is adopted by Zeller[6] and criticized by Vlastos.[7] In one place Mugler follows Burnet in having Love and Strife equal to each of the elements.[8] Elsewhere however Mugler explains that there is an equal thickness for the concentric spheres of the elements and of Love under total Strife and for the circular layer of Strife that surrounds the Sphere. This would give a series of successively greater volumes for each element according to its position from centre to circumference.[9]

3. Bignone supposes initially that Love is equal in volume to all

[1] ἁπάντηι or ἁπάντη Sextus, *Adv. math.* 9. 10, 10. 317; Hippolytus, *Ref.* 10. 7. 5. ἕκαστον Simplicius, *Phys.* 26. 3, 158. 18. ἑκάστωι Panzerbieter, who suggests ἅπαντι for Sextus.

[2] In his note on fr. 17. 20 Panzerbieter writes, 'ἴση μῆκός τε πλάτος τε: neml. τοῖσιν, was aus ἐν τοῖσιν entnommen wird. Der sinnliche Ausdruck veranschaulicht *jede Richtung*, dass sie nemlich zur Bindung aller Elemente hinreichend ist.' This would seem to imply that Love was equal to all the elements taken together. But on p. 7 in his summary of fr. 17 Panzerbieter writes, 'Alle, diese Elemente sowohl als Kräfte, sind unter sich an Quantität gleich...'. This would seem to necessitate that Love was equal to each of the elements.

[3] (1923), p. 125.

[4] *EGP*, pp. 208, 232, 236, cf. Zeller, ZN, p. 953.

[5] *Science hellène*, p. 314.

[6] See under no. 4 below.

[7] (1947), p. 159 n. 36.

[8] (1953), p. 34.

[9] *R.E.G.* 66 (1953), 63–4.For concentric spheres of the elements under total Strife cf. pp. 146–55 below.

the elements taken together, so as to be able to mingle them all in the Sphere.[1] In a later work however Bignone writes of Love and Strife as equal to each of the elements singly.[2]

4. Zeller suggested the possibility that Love was said to be equal to Hate.[3] Zeller despaired of the preceding line: 'V. 19 ist der Text so unsicher...dass sich auf die auseinandergehenden Lesarten und Konjekturen keine verlässliche Ansicht darüber gründen lässt, was Empedokles hier vom νεῖκος aussagt, und was er mit dieser anscheinend nur bildlichen Bezeichnung meint.' This did not deter Nestle from giving a complementary explanation of line 19, whereby Hate is equal to Love, 'Der Hass schwebt oder hält sich nach allen Seiten hin im Gleichgewicht. Er hat noch weder ein Uebergewicht über die φιλότης bekommen, noch ihr gegenüber etwas eingebüsst, wie dies für den Zustand der Ruhe im σφαῖρος durchaus passt.'[4] Nestle explains that Strife's being ἀτάλαντον ἀπάντηι is in some way the culmination of its being μετάρσιον, partially free-swinging, in fr. 35. 9.

5. Karsten thought that the lines described in some way the self-sufficiency of Love and Strife, in that each is said to be equal to itself.

6. Apart from these specific interpretations, several writers have thought that the lines in some way describe the Sphere.[5]

EXTERNAL OR INTERNAL COMPARISON?

Our choice of interpretation hinges primarily on whether the equality spoken of in ἴση and implied in ἀτάλαντον is to be thought of as internal or external. Are Love and Strife said to be *externally* equal, whether equal to all the elements taken together, to each of the elements singly, or one to another? Or are Love and Strife said to be *internally* equal, equal in some way each to itself?

[1] In his note on fr. 17, p. 405, and cf. p. 541.

[2] 'Ennio ed Empedocle', *R.F.I.C.* n.s. 7 (1929), 18, reprinted as chapter 7 of *Studi sul pensiero antico* (Napoli, 1938), p. 338.

[3] ZN, p. 962 n. 3.

[4] *Philologus*, 67 n.F. 21 (1908), 539–40.

[5] Stein, *Empedoclis Agrigentini fragmenta disposuit recensuit adnotavit H.S.* (Bonnae, 1852), *ad loc.*; Cornford (1912), p. 234 n. 2; Bignone, in his notes on fr. 17 and p. 550 n. 1; Freeman (1946), p. 183 n. a1; Zafiropulo (1953), p. 242; Traglia, *Miscellanea di Studi Alessandrini in memoria di Augusto Rostagni* (Torino, 1963), p. 388. Traglia is concerned only with line 19.

'Ατάλαντος in Homer need mean no more than 'equivalent to' or 'like'.[1] Therefore we may compare similar phrases with ἶσος. A shield in Homer is πάντοσ' ἐΐσην, e.g. *Il.* 12. 294. In Hesiod, ἶσον ἁπάντῃι is used to describe Prometheus' liver growing again at night after the eagle's daily attack on it, *Theog.* 524. In either case the addition of πάντοσε or ἁπάντῃι makes the comparison internal. The shield and Prometheus' liver are not compared to anything else. They are 'every way equal (as it were to themselves)'. Probably therefore with the reading ἀτάλαντον ἁπάντῃι Strife is said to be in some way equal to itself.

The two phrases, ἀτάλαντον ἁπάντῃι and ἶση μῆκός τε πλάτος τε, are obviously a pair. If Strife is equal to itself, then it is fairly clear that Love will be 'equal (as it were to herself) in length and breadth'.

If therefore we wish the comparison to be external, we shall probably have to read ἑκάστωι (or possibly ἕκαστον) or ἅπαντι. This means that if the comparison is external the object of comparison will have to be each of the elements singly, not all of the elements taken together. The only way of retaining the latter sense would be to read ἅπασι, a desperate expedient since it has no manuscript authority.

If for the comparison to be external we must read ἑκάστωι or ἅπαντι, this will also exclude Zeller's and Nestle's interpretation. It was in any case an unlikely interpretation. It would be possible perhaps, at first sight, to suppose that Love was said to be equal to Hate, since Hate has been mentioned already. It would be difficult however to anticipate the mention of Love and suppose that Hate was said to be equal to Love. Yet the two phrases are obviously a pair. If Hate is not equal to Love, then it is unlikely that Love is said to be equal to Hate.

Our choice therefore is now simplified. Either we read ἀτάλαντον ἁπάντῃι, in which case the comparison is internal in some way. Or we read ἀτάλαντον ἑκάστωι or ἅπαντι, in which case Strife is somehow equal to each of the elements.

Now if Strife is equal to each of the elements, it will be likely, since the phrases are obviously a pair, that Love will be equal in length and breadth to each of the elements. If Love is equal in length and breadth to each of the elements, she will be their equal

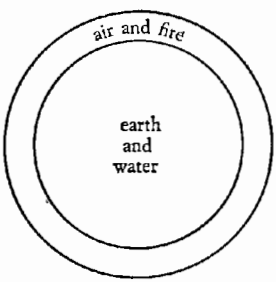
[1] See L.S.J., *s.v.*, and Ebeling, *Lexicon Homericum* (Lipsiae, 1880–5), *s.v.*

in volume, for Empedocles is not likely to be thinking in two dimensions only. In that case the elements will be equal to each other in volume.[1]

Equality of volume for the elements can however be shown to be implausible on two main grounds. The first of the following two arguments explores a practical difficulty that results if Empedocles' world is constructed from elements equal in volume. The second argument considers the implications of Aristotle's remarks on the equality of Empedocles' elements. The two arguments lead to the implausibility of Empedocles' elements being equal in volume, and the attendant implausibility of the interpretation of ἀτάλαντον which would entail this, the interpretation which makes Strife equal to each of the elements.

Our two arguments are as follows.

1. If the elements are equal in volume to each other, the proportions of the universe become hopelessly distorted. For in the world as it is now the elements must be arranged in very roughly equal concentric spheres. But if the elements have each an equal volume, the world would in fact turn out like this:



The formula for the volume of a sphere is $4/(3\pi r^3)$. The ratio of inner to outer radius is roughly 1:1·3. The suggestion is not that Empedocles would have wanted, or been able, to work out the mathematics precisely. The result of equal volumes can easily be visualized by someone who is not a mathematician.

In the diagram we have drawn, the earth becomes extraordinarily large. True, the separation of the elements at the present

[1] This same conclusion has been thought to follow from the description of the elements in line 27 of fr. 17 as ἰσά τε πάντα, which Gilbert explains as 'gleich an Quantität wie an Bedeutung', *Die meteorologischen Theorien des griechischen Altertums* (Leipzig, 1907), pp. 105–6. But there is no need to suppose that the phrase has the specific connotation of equality of volume, cf. p. 136 below.

stage of the cycle is not complete. Some water must exist above the earth in the form of rain and clouds. This will make the inner sphere somewhat smaller. On the other hand there are fires burning inside the earth, e.g. in fr. 52. This will aggravate the problem.

Now it is true that Empedocles did suppose the roof of heaven to be fairly low. For apparently the moon moves 'in the shadow and as it were in the very arms of the earth'.[1] The sun is at most only three times as distant from the earth as is the moon.[2] The sun's path marks the very edge of heaven.[3]

But even if we allow for a very low heaven, the proportions of the universe that result from elements equal in volume are highly improbable. They are at variance not simply with the earliest scientific measurements, which may be discounted as later than Empedocles, but with the proportions of Anaximander's world. In particular, if we are to believe that Empedocles followed Anaximander in making the sun equal in size to the earth,[4] then he cannot have deliberately composed his universe of elements equal in volume. For, as the diagram shows, it would be wholly impossible for a sun that was at all comparable in size to the earth to be fitted into a universe that had been deliberately constructed of elements equal in volume.

It may well be that Empedocles kept the roof of heaven very low to avoid too great a disparity between the volumes of the elements. But our diagram shows that the elements cannot deliberately have been made strictly equal in volume.

It is possible of course that Empedocles, carried away perhaps by his liking for equality (cf. pp. 70 and 83 above), made his elements equal in volume without considering the consequences. But if Empedocles had not thought out volumes clearly, it would be somewhat odd that he should single them out here to the extent that he would do on the Panzerbieter and Burnet interpretation of fr. 17. 19–20.

[1] Plut. *De fac. in orbe lun.* 925 B (cf. DK 31 B 46). The words quoted probably refer directly to Empedocles; the passage as a whole certainly implies that Empedocles' moon is very close to the earth.

[2] Aet. 2. 31. 1 (DK 31 A 61). The precise interpretation of this entry is disputed. A forthcoming study in the *Classical Quarterly* concludes that Empedocles' moon is said to be twice as far from the earth as from the sun.

[3] Aet. 2. 1. 4 (DK 31 A 50).

[4] Aet. 2. 21. 1 and 2 (DK 12 A 21 and 31 A 56).

2. The second main objection to elements equal in volume comes from Aristotle. He speaks of the comparability of Empedocles' elements in a way that shows that he does not think of them as equal in volume.

Aristotle begins his long attack on Empedocles' conception of the elements, in *De generatione et corruptione* 2. 6, 333 a 16–334 a 15, with a demonstration that the elements cannot be equal in any sense without at the same time being mutually transformable. Whether they are 'equal' in size or volume (κατὰ τὸ ποσόν), in power, or by analogy, they must have a common substrate.

There are here two points of significance.

First, when Aristotle considers equality of size or volume, he does not suppose that the whole volume of one element could be equal to the whole volume of another. His assumption is that the volumes would be comparable only, not strictly equal, οἷον εἰ ἐξ ὕδατος κοτύλης εἶεν ἀέρος δέκα, 333 a 21–2.

Secondly, by his enumeration of different types of equality Aristotle gives the impression that he is uncertain what kind of equality Empedocles meant by the phrase which Aristotle quotes, ταῦτα γὰρ ἴσά τε πάντα, fr. 17. 27, 333 a 19–20. This would be odd if a few lines previously Empedocles had in effect specified that the elements were each equal in volume.

It is possible that Aristotle knew that the elements were said to be equal in volume, and that he considers other types of equality in order to cover the rest of Empedocles' theory, or for the sake of completeness.

But that is not the impression Aristotle gives. And if that were the case, it would be odd even so that in considering 'equality' of volume Aristotle should ignore Empedocles' version of the theory—a version so open to attack—and consider volumes that are not strictly equal but merely commensurable.

In the *Meteorologica*, 340 a 13–17, Aristotle again argues that if the elements are equal in power they must be mutually transformable. His purpose is to show that a fifth element must occupy the vast spheres of the outer heaven if the proportions existing between the four sublunary elements are not to be utterly overwhelmed. The argument that if the elements are equal in power they must be transformable is identical with that of the *De*

generatione et corruptione, and it is likely therefore that Aristotle has Empedocles in mind, as Philoponus says he has, *Meteor.* 25. 7. In that case it is interesting that his assumption is again not that there is strict equality but that there is proportion of volumes, 340a8–13. If Empedocles had really made his elements equal in volume, it would be odd that Aristotle should here again ignore such an absurdity, when it would have been so relevant to his theme.

As a slight argument from the text of the poem against equal volumes we may point to the ἄπλετον ὕψος of one element in the line immediately preceding, fr. 17. 18, cf. fr. 135.[1]

There is no need to suppose that Ἰσά τε πάντα, fr. 17. 27, specifically includes volume. Age, honour and power, as in the lines that follow, and in fr. 26. 1–2, sufficiently account for the elements' equality, as Jaeger explains.[2]

Tannery notes very briefly the difficulty of elements equal in volume, but explains that the apparent preponderance of air and fire is due to the greater number of pores in those elements.[3] It is however somewhat implausible in itself that the pores should take up as much room as solid, or more, as will have to be the case if the proportions of the universe are to be at all normal. Further, if Empedocles gave so much space to pores, we may suspect that it would have been difficult for him either to have explained or to have overlooked the discrepancy between the theory of pores and denial of void (cf. p. 74 n. 1 above).

Our arguments are not perhaps strictly conclusive. Empedocles' thought may have been slack at this point. Aristotle may have been peculiarly blind or indulgent. We cannot perhaps press the implications of the single adjective ἄπλετον. But our arguments do very seriously weaken the idea that Empedocles' elements were equal in volume, and so that fr. 17. 20 can be interpreted in a way

[1] In fr. 17 Simplicius, *Phys.* 26. 2, 158. 17, and Clement, *Strom.* 6. 17. 4, have ἄπλετον, but Plutarch, *Quomodo adulator* etc. 63 D, Sextus, *Adv. math.* 9. 10, and Athenagoras, *Apol. pro Christ.* 22, p. 26. 18 Schwartz, have ἤπιον. The latter has perhaps been fetched from Parmenides fr. 8. 57 because it was thought that ἄπλετον would be inconsistent with the view that the world was a sphere; for a sphere cannot be infinite. For a similar explanation of a false reading in Empedocles see p. 267 below. In fr. 17 the sources are also divided between ἠέρος and αἰθέρος.

(1947), pp. 139–40.

[3] *Science hellène*, p. 315.

that would imply this: namely that Love is equal in length and breadth to *each* of the elements.

If we reject the Panzerbieter and Burnet interpretation of line 20, then we shall also reject the reading ἕκαστον or ἑκάστωι in line 19. As we have noted, the two phrases are a pair. If Strife were equal to each of the elements, ἑκάστωι, or if Strife and the four elements were each equal, ἕκαστον, then we should expect Love to be equal to each of the elements 'in length and breadth'. But this leads to elements equal in volume.

Ἕκαστα and ἅπαντα are confused twice elsewhere in Simplicius' quotations of Empedocles:

1. In fr. 17. 8, where Simplicius' manuscripts record ἕκαστα twice[1] and πάντα three times.[2]

2. In fr. 59. 2, where Simplicius quotes the full fragment with ἕκαστα once[3] and three words only with ἅπαντα twice.[4]

These examples might suggest that in fr. 17 ἕκαστον for ἀπάντηι is again a casual error that has arisen from Simplicius' handling of his exemplar or from a later scribe.[5] But ἕκαστον must have been present in Simplicius' exemplar, for he introduces the verse to show that Empedocles ποτὲ δὲ τοῖς τέτταρσιν ὡς ἰσόστοιχα συντάττει καὶ ταῦτα (i.e. Love and Strife), *Phys.* 25. 31. Simplicius has evidently read ἕκαστον and understood the lines to mean that the four elements and Hate are each equal (cf. p. 278 below).

Possibly the reading ἕκαστον has arisen because the spatial implications which we shall argue are contained in ἀτάλαντον ἀπάντηι were not appreciated once the primitive elements in Presocratic thinking had been Platonized.[6]

[1] *Phys.* 1318. 26; *De caelo* 293. 26. Ἕκαστα is supported by Diog. Laert. 8. 76; Stob. *Ecl.* 1. 10. 11b and Ps.-Plut. *Vita Hom.* 99. Cf. p. 281 below.

[2] *Phys.* 25. 30, 158. 8; *De caelo* 141. 2.

[3] *De caelo* 587. 22.

[4] *Phys.* 327. 20, 331. 2. Bignone suggests that the two latter quotations, with ἅπαντα, are not from the same fragment as the full quotation with ἕκαστα. But this is unlikely: for in the later of the two passages with ἅπαντα Simplicius seems to be thinking of—at least he mentions immediately afterwards—the role of chance in the formation of animal life, and we may expect him therefore to have had fr. 59 in mind, since this deals with the same subject.

[5] The latter would be the more likely possibility, since in general Simplicius is scrupulous in copying out his quotations, cf. pp. 281–4 below.

[6] A Platonizing interpretation of the two verses is in fact given by Steinhart (1840), p. 92a.

Conclusion

We conclude therefore that from the point of view of language and immediate context the only way for Love and Strife to be equal externally is for Love and Strife to be equal to each of the elements singly, and for the elements to be equal therefore to one another, and that this proves unlikely both on factual grounds and in the light of Aristotle's criticism. Hence we should probably read ἀπάντηι in line 19 and understand Love and Strife to be in some way internally equal.

THE PRESENT INTERPRETATION

What is the implication of Love being internally equal, 'equal as it were *to herself* in length and breadth'? Zeller supposes that if Love were equal to herself she would be 'ein Quadrat', which if we think in three dimensions will mean that Love is cube-shaped.[1] But a cube is 'equal in length and breadth' only in a fairly restricted sense, for there are different dimensions from the centre of a cube to different parts of the perimeter. The most obvious three-dimensional figure in which length is equal to breadth is a sphere, where passing through the centre there is the same distance from any part of the circumference to any other. Probably therefore the point of Love being 'equal (as it were to herself) in length and breadth' is that Love is stretched out in the shape of a sphere.

Can ἀτάλαντον ἀπάντηι be interpreted to match?

The phrase is used once elsewhere, in Aratus' description of the earth, *Phaen.* 22–3,

> ἄξων αἰὲν ἄρηρεν, ἔχει δ' ἀτάλαντον ἁπάντη
> μεσσηγὺς γαῖαν.

Here ἀτάλαντον appears to have a more specific meaning than the Homeric sense of 'equivalent to' or 'like'. It appears to include the root notion of weight or balance. This notion occurs again in Parmenides' description of his sphere as μεσσόθεν ἰσοπαλὲς πάντηι fr. 8. 44. Ovid is probably translating ἀτάλαντον or ἰσοπαλές when he writes in his cosmogony in the *Metamorphoses*, 1. 12–13,

> nec circumfuso pendebat in aere tellus
> *ponderibus librata suis.*

[1] ZN, p. 962 n. 3.

Even if we take ἀτάλαντον to mean simply 'equivalent to' or 'like', then, apart from the descriptions already noted of Homer's shield and Prometheus' liver (p. 132), similar expressions are again used to describe a sphere:

Parmenides: οἳ γὰρ πάντοθεν ἶσον.[1]

Empedocles: ⟨πάντοθεν⟩ ἶσος ἑαυτῶι[2] and πάντοθεν ἶσος ⟨ἐοῖ⟩.[3]

Timon: ἶσον ἀπάντηι.[4]

This usage is probably imitated by Ovid, *Met.* 1. 34–5,

> principio terram, ne non *aequalis ab omni*
> *parte* foret, magni speciem glomerauit in orbis.

We may perhaps also compare πάντηι used alone to mean 'circular' or 'all the way round', Dionysius Periegetes 27 = *Orphicorum fragmenta* 115 Kern,

> πάντη δ' ἀκαμάτου φέρεται ῥόος Ὠκεανοῖο.

These instances show that ἀτάλαντον ἀπάντηι, whether or not we include in ἀτάλαντον the notion of balance, would easily have suggested a body disposed in the shape of a sphere. But Strife, since it is apart from the elements, δίχα τῶν, and since, as we have argued in the previous chapter, it is always outside Love, cannot have been shaped precisely like Aratus' earth or Parmenides' and Empedocles' sphere: it cannot have been a *solid* sphere. However, the use of similar phrases for shield and liver, and the use of πάντηι for the circular Oceanus, show that the meaning of the phrase is fairly flexible, sufficiently flexible to allow ἀτάλαντον ἀπάντηι to mean not a solid but a *hollow* sphere. This would match perfectly the description of Love.

Conclusion

We conclude therefore that most likely Love is stretched out in the form of a sphere, 'equal (as it were to herself) in length and

[1] Fr. 8. 49. οἳ Diels for οἱ, Simpl. *Phys.* 146. 22.

[2] Fr. 29. 3 Schneidewin, *Philologus*, 6 (1851), 161, for ἶσος ἐστὶν αὐτῶι Hippol. *Ref.* 7. 29. 13.

[3] Fr. 28. 1. This verse is quoted anonymously by Stob. *Ecl.* 1. 15. 2a, but is followed by a verse, fr. 28. 2 = fr. 27. 4, attributed by several authors to Empedocles, e.g. Simpl. *Phys.* 1184. 1. ἐοῖ add. P. Maas, ἐών Grotius, ἓην Diels, ὁμοῦ or ὁμῶς Wachsmuth.

[4] Fr. 60. 2. Timon is describing Xenophanes' god, probably with the thought of its being σφαιροειδῆ, cf. [Arist.] *De MXG* 977b 1.

breadth'. Strife is 'equally balanced on every side', or more simply 'equal on every side', because it forms a hollow spherical layer, presumably surrounding Love.

THE TIME OF THE DESCRIPTION

Do these verses describe a specific period in the cycle? There are some indications that the Sphere is particularly in mind, but probably not exclusively so.

First, Strife is 'apart from' the elements, δίχα τῶν. Perhaps that is simply a typical position for Strife, the principle of separation. But literally it would apply most clearly to the Sphere.

Secondly, in the list of elements immediately preceding fire and water are juxtaposed,

πῦρ καὶ ὕδωρ καὶ γαῖα καὶ ἠέρος ἄπλετον ὕψος.

There may well be some significance in this. For in seven other enumerations or partial enumerations of the elements these two are not put together, and in five of these cases they are furthest apart.[1] On the other hand, in three fragments fire and water are juxtaposed, and each time the power of Love is noticeably dominant:

in fr. 62, the formation of whole-natured creatures (cf. pp. 203–9 below);

in fr. 96, Love fuses three elements to form bone;

in fr. 98, Love fuses all four elements to form blood and flesh. It may well not be fanciful to suppose that in so conscious a stylist as Empedocles the juxtaposition of two so contrasting elements is intended as an indication of Love's special presence.

Against the suggestion that the Sphere is particularly in mind in these lines the scrupulous critic will object that fr. 17 came at the beginning of Empedocles' poem, as we might guess from the

[1] Four elements are enumerated, and fire and water are furthest apart in fr. 6, if, as seems likely, Ζεὺς ἀργής represents fire, and in frr. 22 and 71.

The order is fire, air, water, earth in fr. 21, if we reject Wilamowitz's rearrangement of these lines, see below, p. 226 n. 1; and earth, water, air, fire in fr. 38.

Three elements are enumerated, and fire and water are furthest apart in frr. 26a and 27: for the distinction of these two fragments see below, pp. 149–54.

content, and as Simplicius tells us, *Phys.* 161. 15. Fairly certainly the Sphere was not described till later. A loose reference to it here would therefore be unrecognizable.

This probably will tell against an exclusive reference to the Sphere. But Empedocles could well have given a foretaste of the Sphere. We know that his poem required several hearings before it could be fully appreciated.[1]

Another objection will be that the description will more likely belong to the world of plurality, for the last reference has been to πλέονα and not to ἕν, lines 16–17,

> τοτὲ μὲν γὰρ ἓν ἠὐξήθη μόνον εἶναι
> ἐκ πλεόνων, τοτὲ δ' αὖ διέφυ πλέον' ἐξ ἑνὸς εἶναι.

This again will help to tell against an exclusive reference to the Sphere. But one and many have been described in the preceding lines in rapid succession, and after hearing once again τοτὲ μὲν γὰρ ἕν . . . , τοτὲ δ' αὖ . . . πλέονα . . . , the listener need not be predisposed to have in mind only πλέονα, and not ἕν.

Will then our interpretation of the description in fr. 17. 19–20 have applied to other periods in the cycle apart from the Sphere? The answer to this question depends on how we envisage the action of Love and Strife during the periods of their increasing power.

Millerd writes: 'It (*sc.* Tannery's theory that there was no world under increasing Strife, cf. pp. 158ff. below) might be valid, again, were we to conceive Love and Strife strictly as mechanical forces, operating according to law at all points in the world, the one with increasing, the other with decreasing force. In this case we should suppose that Love made no local and temporary advances during this period (*sc.* increasing Strife), but simply relinquished her hold gradually. But by Empedocles their relation was conceived rather after the analogy of the battlefield, wherein one point after another is lost for a considerable time to the enemy, and then regained, perhaps only to be lost again.'[2] These images are repeated by Bignone.[3]

[1] Arist. *Eth. Nic.* 1147a19–22, b11–12. Cf. Cornford (1912), pp. 225–6, and Munding (1954), pp. 136–7.

[2] (1908), p. 46.

[3] Pp. 226–7 and 351 n. 3.

Millerd mentions as evidence for her view fr. 59. 1 and a passage from Aristotle, *De gen. et corr.* 315a16–17.[1] The identity of the *daimones* in fr. 59 is open to question. Probably they are not Love and Strife 'mingled' in combat, as is usually supposed. The verse is also relevant to the reconstruction of Empedocles' zoogony, and the interpretation is discussed separately.[2] Aristotle does speak of Love and Strife as fighting, in the passage quoted by Millerd, ἄλλως τε καὶ μαχομένων ἀλλήλοις ἔτι τοῦ νείκους καὶ τῆς φιλίας. But there is nothing to show that Aristotle means fighting in Millerd's elaborate sense.

The notion of a cosmic battle appears also in Lucretius, 2. 573–6 (quoted below, p. 317), in verses which Bignone supposes to have been based on Empedocles and in particular on fr. 26.[3] But fr. 26 in effect describes the alternate dominance of Love and Strife as part of the cosmic cycle (see below, pp. 314–24), not fluctuations of Love and Strife within either world, which would be the sense required to support Millerd's view.

In fact Millerd's description appears to have been taken, consciously or unconsciously, from Simplicius, *Phys.* 1124. 7–9: δύνατον δὲ καὶ ἐν τῶι ὑπὸ σελήνην (*sc.* κόσμωι) ἄμφω θεωρεῖν τήν τε ἕνωσιν καὶ τὴν διάκρισιν ἀεὶ μὲν ἄμφω, ἄλλοτε δὲ ἄλλην ἐν ἄλλοις καὶ ἄλλοις μέρεσιν ἢ ἐν ἄλλοις καὶ ἄλλοις χρόνοις ἐπικρατοῦσαν. But in Simplicius the temporary advances and withdrawals of Love and Strife take place within a single and eternal sensible realm.[4] They are an attempt to explain the 'mythical' alternation of Love and Strife within this framework in a way that will mitigate the extreme Platonizing interpretation whereby Strife alone is active in the sublunary world.[5]

Millerd is refuted by fr. 35. Lines 12–13 fairly clearly imply that the 'battle' between Love and Strife was seen as an over-all regular process, precisely the view which Millerd rejects,

> ὅσσον δ' αἰὲν ὑπεκπροθέοι (Strife), τόσον αἰὲν ἐπήιει
> ἠπιόφρων Φιλότητος ἀμεμφέος ἄμβροτος ὁρμή.

[1] (1908), p. 46 n. 5.
[2] Cf. p. 235 n. 1 below and see note 10, pp. 325–36 below.
[3] P. 420.
[4] For Simplicius' interpretation of Empedocles, see p. 28 above.
[5] For this interpretation of Empedocles, see pp. 100–1 above.

There is no hint here of temporary conquest. On the contrary, ὅσσον αἰὲν . . ., τόσον αἰὲν . . . suggests pretty clearly that what Love wins, she retains. What is true of increasing Love will presumably be true of increasing Strife, after the first shock and storm of the elements.[1]

Thus the only evidence that we have, fr. 35. 12–13, implies that the 'battle' between Love and Strife was on the whole a regular process of advance by one and withdrawal by the other. In that case the descriptions ἀτάλαντον ἀπάντηι and ἴση μῆκός τε πλάτος τε will probably apply to the world at times other than the Sphere.

TOTAL STRIFE

Would the description in fr. 17. 19–20 apply even to the time of Strife's total power?

There is no justification for following Tannery's notion, quoted in the introduction to this chapter (p. 128), that under total Strife Love is 'divisée en lambeaux'. For total Strife is not a chaos, a 'tohu-bohu', of the kind that Tannery imagines (see further pp. 146–9 below). The four elements, we shall argue in the next chapter, are then arranged in concentric spheres. Love too therefore will then most likely still be ἴση μῆκός τε πλάτος τε, i.e. forming a solid sphere at the centre of the elements.

It is more difficult to know how we should envisage Strife at the time of its total power. Mugler, as we have noted in the introduction to this chapter, claims that at that time Strife was arranged in concentric spheres between the elements. But there is no evidence on the point. Indeed Empedocles himself may not have known. For here is a point at which we should be prepared to apply Millerd's rule (cf. pp. 71–4 above) that Empedocles' thought should not be pressed too far. For it is easy enough to visualize a mixing power as itself mixed in with the elements it is binding together. It is easy enough therefore to visualize Love as mixed throughout the elements at the time of her total power. It is also easy enough to imagine a separative force penetrating the mingled elements, or withdrawing from them. But there is no obvious

[1] For the storm of the elements as a feature of Strife's cosmogony, cf. p. 49 above and see note 4 on pp. 268–73 below.

visual image of a separative force once its work is completed. Quite possibly therefore Empedocles' power of spatial perception did on this occasion desert him. At least, if he solved this problem, we have no means of knowing how he did so.

Conclusion

We conclude therefore that in fr. 17. 19–20 Love is stretched out in the shape of a sphere, 'equal (as it were to herself) in length and breadth'. Strife is 'equal' or 'equally balanced on every side', because it forms a hollow spherical layer, presumably surrounding Love.

This is most likely a general description of the shapes of Love and Strife. However there is probably a more particular stress on their shapes during the Sphere. For then the movements of expansion and contraction, which must involve some irregularity, will have ceased. The description may not be consciously intended to include the shape of Strife during the brief transitional period of its total power.

PLATO

The world in Plato's *Timaeus* has several affinities with Empedocles' Sphere. It is made of four elements bound together by φιλία.[1] It is ἀγήρως and ἄνοσος, just as in the *Politicus* the world became, under god's guidance, ἀθάνατος and ἀγήρως, in each case an archaic touch.[2] It is spherical in shape.[3] Like Empedocles' Sphere, it has no need of eyes, ears, lungs, hands or feet.[4] It is a single unique being, 34B: καὶ κύκλωι δὴ κύκλον στρεφόμενον οὐρανὸν ἕνα μόνον ἔρημον κατέστησεν . . . γνώριμον δὲ καὶ φίλον ἱκανῶς αὐτὸν αὑτῶι. διὰ πάντα δὴ ταῦτα εὐδαίμονα θεὸν αὐτὸν ἐγεννήσατο. Here, as we have already had occasion to notice, ἕνα μόνον ἔρημον is probably reminiscent of Empedocles' elements growing together ἓν . . . μόνον εἶναι, and perhaps of the Sphere rejoicing μονίηι.[5]

[1] *Timaeus* 32C. [2] *Tim.* 33A; *Pol.* 273E. Cf. p. 96 above. [3] 33B.
[4] 33C–34A. Fr. 29, cf. fr. 134.
[5] Fr. 17. 1 and 16. Fr. 27. 4 = fr. 28. 2. Discussed above, pp. 22–4. Cf. also μόνωσις 31B.

This does not exclude of course an attack on the Atomists' innumerable worlds. It is perfectly possible for Plato to attack the Atomists through ideas and imagery that are reminiscent of Empedocles.

In the passage quoted there is a sign of new interests, and thereby probably a correction of Empedocles. Plato's world god is not only φίλον but γνώριμον αὐτὸν αὑτῶι. Aristotle too is conscious that Empedocles' Sphere is ἀφρονέστατον and ἧττον φρόνιμον τῶν ἄλλων.[1] Concern for the thoughts of god had probably not exercised Empedocles.

In the words that immediately precede there may be another correction of Empedocles, 34B: ψυχὴν δὲ εἰς τὸ μέσον αὐτοῦ θεὶς διὰ παντός τε ἔτεινεν καὶ ἔτι ἔξωθεν τὸ σῶμα αὐτῆι περιεκάλυψεν.[2] Precisely this image is repeated a moment or two later, 36E: ἡ δ' (*sc.* ψυχή) ἐκ μέσου πρὸς τὸν ἔσχατον οὐρανὸν πάντηι διαπλακεῖσα κύκλωι τε αὐτὸν ἔξωθεν περικαλύψασα . . . The position of Plato's soul is the same as the position we have attributed to Love, stretching out from the centre in all directions in the form of a sphere. But Plato makes a point of wrapping soul round the *outside* of the elements as well. This is very likely in order to make Love occupy the position of Strife. In this way Plato shows again his denial of the existence of Empedocles' evil god, precisely as he had done in the *Politicus*, and by a slight implication in the *Sophist*.[3]

[1] *Met.* 1000b3–9; *De anima* 410b4–7.

[2] With ἔτεινεν cf. perhaps τέταται fr. 135.

[3] *Pol.* 270A and 272E. *Soph.* 243A, see above, p. 95. This comparison with Plato's *Timaeus* has already been noted by Bignone, p. 616. The point has not been taken up however by Taylor or Cornford, both of whom have difficulty in explaining the phrase ἔτι ἔξωθεν because they are not alive to the implied criticism of Empedocles: Taylor, *A commentary on Plato's Timaeus* (Oxford, 1928), p. 105; Cornford, *Plato's cosmology* (London, 1937), p. 58. On the question of ἔτι ἔξωθεν and the void see above, p. 104 n. 2.

Plato also makes a point of noting that no one of the elements has any part left 'outside' the world, 32C7–8, cf. 33C2. This may possibly again be a criticism directed against Empedocles, who according to Aetius said that the cosmos was only a small part of the whole, τὸ δὲ λοιπὸν ἀργὴν ὕλην, 1. 5. 2 (DK 31A47).

CHAPTER 7

THE SEPARATED ELEMENTS

INTRODUCTION

When the elements have been fully separated by Strife, we should expect to find them arranged in concentric spheres. For there is no other way in which the separated elements can be easily visualized; and concentric spheres is what the arrangement of the world now might suggest, if we supposed it had arisen from the Sphere. Our expectations are confirmed by passages in Plutarch and Aristotle.

Concentric spheres have been thought of by anyone who has tried to draw a diagram of total Strife.[1]

Tannery took a different view: 'On ne doit pas. . . supposer que le Neîkos arrive à produire une séparation complète des éléments, de façon à conduire chacun d'eux à une place déterminée de l'univers; son action n'ira pas plus loin qu'une dissociation complète de l'homogène, et dans cet état de dissociation, le repos originaire aura fait place à un tohu-bohu où s'agitent, en mouvements désordonnés, les masses élémentaires, indistinctes et confuses.'[2] Tannery's description is part of his view that there was essentially only one world from Sphere to Sphere and that 'total Strife' was a mere preliminary sorting out of the elements (cf. pp. 158ff. below). Nonetheless Tannery's view reappears in a number of writers, including some with a more orthodox view of the cycle, most immediately Chaignet,[3] and with reservations Ferrari.[4] Robin presumably has Tannery's view in mind when he compares total Strife to the Sphere as a 'chaos incohérent, au lieu d'un chaos compact'.[5] Rey speaks in a similar vein of the condition of the elements under total Strife as 'la poussière élémentaire' and

[1] Cornford, in his (unpublished) lecture notes. Mugler (1953), p. 40. Santillana (1961), p. 112. Also Millerd (1908), p. 56; Bignone, pp. 223, 562 n. 3, 595 n. 1; Frenkian (1937), pp. 54–5; and Raven (1957), p. 346.

[2] *Science hèllene*, p. 319.

[3] *Histoire de la psychologie des Grecs*, vol. 1 (Paris, 1887), p. 83.

[4] (1891), p. 62.

[5] (1923), p. 127.

'une sorte de pulvérisation des différents éléments en un magma chaotique où la diversité est en chaque partie à son maximum'.[1] Tannery and Robin are followed by Vandercoilden[2] and by Boussoulas.[3] Boussoulas explains that a 'chaos incohérent' is a further separation beyond the isolation of each element—whatever that may mean.

CONCENTRIC SPHERES

First, against the idea that total Strife was, as regards the positioning of each element, some kind of chaos with a separation beyond the isolation of each element, we have the testimony of Aristotle, *Met.* 985a23–7:

πολλαχοῦ γοῦν αὐτῶι ἡ μὲν φιλία διακρίνει τὸ δὲ νεῖκος συγκρίνει. ὅταν μὲν γὰρ εἰς τὰ στοιχεῖα διίστηται τὸ πᾶν ὑπὸ τοῦ νείκους, τό τε πῦρ εἰς ἓν συγκρίνεται καὶ τῶν ἄλλων στοιχείων ἕκαστον.[4]

Further, as if to refute Tannery's very words that none of the fully divided elements had 'une place déterminée de l'univers', we have the testimony of Plutarch, in a passage from the *De facie* quoted and discussed earlier, wherein Empedocles' state of total Strife is introduced precisely to illustrate what would happen if each of the elements *was* wholly confined to its 'natural' place in the universe.[5]

Of exactly the same implication is Aristotle's remark in the *De caelo*, in a passage we have also quoted and discussed before, to the effect that Empedocles omitted to describe the origins of the world order under increasing Love because the elements were then already separate and moving.[6] The point is that under total Strife the elements were already arranged essentially as they are now in Aristotle's universe. Aristotle must therefore be thinking of the separated elements arranged in concentric spheres of fire, air, water and earth, roughly as they are in his own world.[7]

It is true as Tannery says,[8] and as Ferrari repeats,[9] that in the

[1] (1939), pp. 106 and 108. [2] (1945), p. 77. [3] (1958), pp. 140–1.
[4] This may give the context of fr. 37, cf. p. 315 below.
[5] 926c–927a, see pp. 31–6 above.
[6] 301a11–20 discussed on pp. 10–11 above. See also pp. 175–7 below.
[7] The precise order of the elements is considered in the last section of the present chapter.
[8] *Science hellène*, p. 319. [9] (1891), p. 62.

Physics and in the *De generatione et corruptione* Aristotle criticizes Empedocles for not having made his elements move always in the same direction, ἀλλ' ὅπως ἂν τύχῃ or ὥσπερ ἀπὸ τύχης.[1]

But this does not mean that the movement of Empedocles' elements was chaotic all the time. In the *Physics* Aristotle is thinking of the storm of the elements at the start of Strife's cosmogony (see pp. 269–70 below). In the *De generatione et corruptione* he is thinking partly of this (see pp. 269–70 below), and partly of the different effects of increasing Love and increasing Strife (see pp. 14 n. 1 and 36 above). There is nothing therefore in what Aristotle says to imply that at the time of total Strife the elements were not arranged each in its 'natural' place.

It is true again that Aristotle introduces Strife as cause of evil things and more precisely of ἀταξία, *Met.* 984b32–985a10. Plutarch likewise, in the passage already cited from the *De facie*, 926C–927A, calls total Strife an ἀκοσμία καὶ πλημμέλεια, and quotes verses that describe total Strife as a non-cosmic state, fr. 26a, discussed in the following section. This might seem to contradict Aristotle's claim in the *De caelo* that the world under total Strife would be like the world we know now.

Again the difficulty is only apparent. The context in the *Metaphysics* is a very general one. It is quite easy to see how a total separation of the elements into concentric spheres would seem to Empedocles and to the spokesman in Plutarch's dialogue as a negation of the world order, and to Aristotle in the *De caelo* as essentially the structure of the world we see now. Indeed the point of Plutarch's reference to Empedocles is that the Stoic and Aristotelian theory of natural places for the elements, if carried to its logical conclusion, would make a world impossible.

Plutarch's attack on the Stoics explains his choice of quotation: he wishes to emphasize the disappearance of the visible world order. Almost identical verses, it will be argued in the next section, were used to describe the Sphere, the other non-cosmic stage in the world cycle.[2]

[1] *Phys.* 196a19–23. *De gen. et corr.* 333b22–334a9. This is repeated in Aetius 2. 7. 6 (DK 31A35) and Achilles, *Isag.* 4, p. 34. 20–3 Maass (DK *ibid.*).

[2] Parallel verses to describe the Sphere and total Strife in no way imply that the two periods were equal from the point of view of *duration*, which would conflict with the conclusions of chapter 4.

The rest of Empedocles' description evidently contrasted total Strife with the Sphere. It is contained in Plutarch's paraphrase (quoted p. 32 above): 'Earth had no part in fire, nor water in air. Nothing heavy was up. Nothing light was down.'[1] These ideas can be illustrated from elsewhere. They are reasonably clear as they stand. Earth is what is heavy.[2] It is the aim of Love to move earth upwards, and of Strife to move earth downwards.[3] At the time Plutarch describes Strife is triumphant and therefore every particle of earth is down. 'Down' in this context will be the centre. We may compare the use of ἐνέρτατον βένθος in fr. 35.[4]

Thus, according to Plutarch's paraphrase, at the time of total Strife earth is 'down', in the centre, and the lighter elements, fire and air, are up. The result can be visualized only as concentric spheres.

FRAGMENTS 26a AND 27

Part of Empedocles' own description of the condition of the elements under total Strife is preserved by Plutarch, fr. 26a:

> ἔνθ' οὔτ' ἠελίοιο δεδίσκεται ἀγλαὸν εἶδος
> οὐδὲ μὲν οὐδ' αἴης λάσιον γένος οὐδὲ θάλασσα.[5]

Simplicius quotes apparently from Eudemus a similar verse of the Sphere, printed by Diels as part of fr. 27:

> ἔνθ' οὔτ' ἠελίοιο διείδεται ὠκέα γυῖα.[6]

These two fragments were treated as one by Panzerbieter, Stein, Diels, Millerd,[7] Raven[8] and Pfligersdorffer.[9] They were separated by Karsten followed as usual by Mullach, and most emphatically by Bignone.[10] Although opinion has recently gone the other way (Raven and Pfligersdorffer), Bignone's separation of the fragments is almost certainly correct.

[1] The reference to weight is defended on pp. 34–6 above.
[2] Fr. 21. 6, cf. Arist. *De gen. et corr.* 315a11, see above, p. 35.
[3] Arist. *De gen. et corr.* 333b22–33, cf. p. 14 n. 1 above.
[4] See pp. 113–16 above.
[5] Plut. *De fac. in orbe lun.* 926E, quoted p. 32 above. δεδίσκεται Karsten. δεδίττεται E B. I adopt Bignone's numeration, p. 421.
[6] Simpl. *Phys.* 1183. 30. The context has been given in full above, p. 27. διείδεται A F. διείεται M.
[7] (1908), p. 60 n. 3.
[8] (1957), p. 326 n. 1, cf. pp. 345–6.
[9] (1959), pp. 105 ff.
[10] Pp. 599–605. I am not clear which view Minar means to follow, (1963), pp. 130–1.

Empedocles' poem was well known to Plutarch, as we have seen (pp. 32–3 above), and would very likely be known to a scholar of Eudemus' day (cf. pp. 30–1 above).

Simplicius gives at least tacit approval to Eudemus' use of the fragment to describe the Sphere. Would Simplicius also have known the true context of the verse? We have criticized Simplicius for his interpretation of Empedocles' system (pp. 28–9). But there is no doubt that Simplicius had access to a large part, probably the whole, of the physical poem.[1]

This is shown in the first place by the extent of Simplicius' quotations. He quotes over a hundred and fifty verses or part verses, often repeating them, in one case, fr. 17. 7–8, as many as half a dozen times.[2] Thus Simplicius' quotations account for nearly eight per cent of the whole poem, if we accept the Suda's figure of two thousand verses for the physical poem. Our other most prolific sources, Aristotle and Plutarch, quote each no more than one hundred verses or part verses.

Simplicius' familiarity is shown in the second place by the way in which he refers his quotations to parts and books of the poem, thus:

> πρὸ τούτων δὲ τῶν ἐπῶν *Phys.* 32. 11.
> ὀλίγον δὲ προελθών 33. 18.
> τὰ εὐθὺς ἐν ἀρχῇ παρατεθέντα 161. 14–15.
> ἐν τῷ πρώτῳ τῶν Φυσικῶν 157. 27 and 300. 20.
> ἐν τῷ δευτέρῳ τῶν Φυσικῶν 381. 29.

Finally, Simplicius shows the ease with which he consults the poem by his ability to select passages in illustration of some particular topic. Two occasions are especially remarkable.

At *Phys.* 330. 31 ff., Simplicius is concerned to illustrate Aristotle's charge that Empedocles relied unreflectingly on chance as a cause of natural phenomena.[3] Simplicius quotes six more fragments, other than fr. 53 quoted by Aristotle, that contain the fatal words συγκυρεῖν, τυγχάνειν or τύχη.[4] As he does so, he notes, 331. 13, that fr. 104 came 'shortly after', μετ' ὀλίγον, fr. 103.

[1] This is also the conclusion of Tischer (1843), pp. 14–16.
[2] *Phys.* 25. 29, 158. 7, 1318. 25; *De caelo* 141. 1, 293. 25, 530. 14.
[3] Arist. *Phys.* 196a19–24.
[4] Frr. 59. 2, 98. 1, 85, 75. 2, 103, 104.

He also observes, 331. 10, and it is surely no mere showmanship: καὶ πολλὰ ἄν τις εὕροι ἐκ τῶν Ἐμπεδοκλέους Φυσικῶν τοιαῦτα παραθέσθαι.

On the other occasion, *De caelo* 528. 29 ff., Simplicius is concerned to demonstrate, against Alexander and others, that Love is active in the sensible world.[1] Again he quotes seven fragments which describe Love participating in the production of sensible objects.[2] In doing so, he notes again that fr. 87 came 'shortly after', μετ' ὀλίγον, fr. 86, and that fr. 73 came 'not long after', μετ' ὀλίγα, fr. 71. He concludes, 530. 11, and again it is surely no dishonesty: ταῦτ' ἐξ ὀλίγων τῶν εὐθὺς προσπεσόντων ἐπῶν ἀναλεξάμενος παρεθέμην.

Thus Plutarch and Simplicius and most likely Eudemus were familiar with Empedocles' physical poem. None of them is likely to have mistaken the context of the lines he records. Both contexts therefore are likely to be correct. Similar verses will have been used to describe the Sphere and Strife's total victory.

It is in itself likely enough that Empedocles should have used the same, or nearly the same, verses to describe the Sphere and total Strife. For repeated verses were a favourite device of Empedocles. Some twenty-five other lines are repeated, and sometimes more than once, even in the fragments that we have.[3]

The variations, δεδίσκεται ἀγλαὸν εἶδος in Plutarch and διείδεται ὠκέα γυῖα in Simplicius, are also characteristic:

εἰς ἓν ἅπαντα and εἰς ἕνα κόσμον in frr. 17. 7 and 26. 5.

διαλλάσσοντα and τάδ' ἀλλάσσοντα in frr. 17. 12 and 26. 11.

περιπλομένοιο χρόνοιο and περιπλομένοιο κύκλοιο in several fragments.[4]

μήδεα γεννήεντα and μήδεα λαχνήεντα in frr. 29. 2 and 134. 3. Particularly relevant is the change of verb, φῶς δ' ἔξω διαθρῴισκον, and πῦρ δ' ἔξω διίεσκον, in fr. 84, lines 5 and 11.[5]

[1] For the interpretation of Alexander and others, see pp. 100–1 above.

[2] Frr. 35, 86, 87, 95, 71, 73, 75.

[3] Frr. 2. 2 = 110. 7; 17. 1–2 = lines 16–17; 17. 6 = line 12 = 26. 11; 17. 7–13 = 26. 5–12; 17. 7–8 = 20. 2 and 4; 17. 29 = 26. 1; 17. 34–5 = 21. 13–14 = 26. 3–4; 26. 4 partly = 121. 2; 21. 10–12 = 23. 6–8; 27. 4 = 28. 2; 29. 1–2 = 134. 2–3; 35. 7 = line 16; 84. 5 = line 11; 100. 7–8 = lines 24–5.

[4] Frr. 17. 29, 26. 1, and 110. 8. Cf. τελειομένοιο χρόνοιο, fr. 30. 2.

[5] Διίεσκον is recorded in one manuscript only, P, Arist. *De sensu* 438a 3.

Δεδίσκεται is a plausible emendation of δεδίττεται, which makes poor, indeed hardly possible, sense. It is unlikely that we should restore διείδεται, both because, as we have noted, the variation is characteristic, and because Plutarch's distortions tend to be the other way round, the more usual for the less:

θαμίζειν for θοάζειν.[1]

ἀκοῦσαι for ἐνισπεῖν.[2]

Perhaps χελωνῶν for χελύων.[3]

Bignone's emphatic separation of the fragments is challenged by Pfligersdorffer[4] on the ground apparently that Plutarch refers not to the elements as such, but to the 'Einzeldinge unserer konkreten Welt'. Pfligersdorffer evidently assumes with Panzerbieter that this was not Empedocles' meaning: 'ἠελίοιο, das Element des Feuers, nicht die Sonne als Weltkörper; denn dass dann die Welt und ihre Theile nicht existiren, versteht sich von selbst'.[5] Bignone had written that sun, earth, etc., represent 'tanto *l'elemento omonimo*...come la *terra* e il *sole* considerati quali *corpi cosmici*'.[6] Pfligersdorffer's argument is evidently that Plutarch takes the verses as a denial of the continued existence of the sun and sea and so applies the verses to the state of total Strife when sun and sea would no longer exist, but when there would be cosmic masses of fire and water. In fact, Pfligersdorffer supposes, the verses contain a denial of the continued existence of cosmic masses of fire and water, which would be true only of the Sphere and not of total Strife.

[1] Fr. 3. 8, quoted *De amic. mult.* 93B. The correct reading, in the form θοάζει, is in Sextus, *Adv. math.* 7. 125, and in Proclus, *in Tim.* 1. 351. 10.

[2] Fr. 25, quoted *Non posse suav. vivi sec. Epic.* 1103F; the correct reading is from a scholium on Plato's *Gorgias* 498E, ed. Greene (Haverfordiae, 1938). This is perhaps a half deliberate distortion, since the speaker is encouraging someone else to talk, and perhaps professes his own willingness to listen.

[3] Fr. 76. 2, quoted with χελύων *Quaest. conv.* 618B, and with χελωνῶν *De fac. in orbe lun.* 927F. χελωνῶν is unmetrical and may therefore have arisen in the transmission of Plutarch's text, as of course the other incorrect readings may possibly have done. Alternatively Plutarch may have deliberately or semi-deliberately adapted the wording of his quotation, which is short and divided, to its prose context.

For Plutarch's carelessness in quotation generally see Fairbanks (1897), pp. 77–80.

[4] (1959), pp. 105 ff.

[5] Panzerbieter's note on fr. 27.

[6] P. 604.

If this is Pfligersdorffer's argument, it has no force. The non-cosmic state of total Strife and of the Sphere is by no means too obvious to need statement, as Panzerbieter would have us believe. We can, it is true, as Panzerbieter and Pfligersdorffer demand, distinguish between the—presumably—total disappearance of the characteristics of fire in the Sphere and the continuance of a cosmic mass of fire under total Strife. But that is a refinement which need not intrude on Empedocles' words here. The point—Empedocles' point, Plutarch's point—is simply that total Strife or total Love are non-cosmic states: at those times the elements are not visible in their present form.

These verses of Empedocles have been imitated by Lucretius, and in a way that slightly supports the separate identity of our fragments, 5. 432 ff.

> hic neque tum solis rota cerni lumine largo
> altiuolans poterat nec magni sidera mundi
> nec mare nec caelum nec denique terra neque aer
> nec similis nostris rebus res ulla uideri,
> sed noua tempestas quaedam molesque coorta
> omnigenis e principiis, discordia quorum
> interualla uias conexus pondera plagas
> concursus motus turbabat proelia miscens...

Bignone has rightly held that Lucretius has conflated both Empedocles' descriptions, of the Sphere and of total Strife.[1] But Bignone's analysis of the conflation is faulty. He holds that the 'moto incomposto' of the elements is drawn from total Strife, as is *lumine largo* which translates Plutarch's ἀγλαὸν εἶδος, while the *moles* represents the Sphere.

Movement as such is no indication of Empedocles' influence. Lucretius' atomism will have ensured that before the world began the elements were moving. It is the mention of *proelia* and *tempestas* which betrays the connection with Empedocles. And that image is derived not from the total victory of Strife, but from the storm and battle of the elements which followed immediately after the Sphere.[2]

[1] P. 603.

[2] References note 4, pp. 268–73 below.

Next, *lumine largo* probably does represent ἀγλαὸν εἶδος, as Bignone claims. But the equation should be received with some caution, for *lumine largo* is a phrase with a strongly Lucretian character. This precise combination of noun and adjective does not occur again. But we have two very similar phrases, 5. 281 *largus item liquidi fons luminis, aetherius sol*, and 3. 22 *large diffuso lumine* describing the *innubilis aether*, cf. also *larga luce* of a peacock's tail, 2. 806. In general Lucretius has a fondness for these vast expanses of light. Applied to the sky or sun we find *lumenque profusum* twice, 5. 570 and 767, *diffuso lumine*, 1. 9, and *aperto lumine*, 5. 778. Elsewhere the verbs *pandere, perfundere* and *diffundere* are all used to describe the sun's shedding of light, 2. 148, 4. 202, 5. 657, cf. 1. 144. Given the rest of the line, and the context, it is probably still fair to claim that *lumine largo* translates ἀγλαὸν εἶδος. But we should be aware that a fairly standard piece of Lucretian vocabulary has been chosen.

If *lumine largo* is accepted as Lucretius' translation of ἀγλαὸν εἶδος, then this will support Plutarch's form of quotation. It is interesting that Lucretius has another phrase to describe the sun, in this and the following line, *rota altiuolans*. This is an unusual phrase. *Altiuolans* Lucretius does not use again. *Rota* is only once again applied to the sun, 5. 564. It seems not impossible that *rota altiuolans* is intended to represent—translate would be too strict a term—ὠκέα γυῖα, in Eudemus' and Simplicius' form of the quotation.

Thus we have in Lucretius some confirmation for both forms of the quotation, as applied to the Sphere by Simplicius and Eudemus, and as applied to total Strife by Plutarch. *Lumine largo* probably supports Plutarch's form of quotation. Mention of *proelia* and *tempestas*, and possibly the phrase *rota altiuolans*, support the use of the quotation to describe the Sphere by Simplicius and Eudemus.

We conclude that both Simplicius' and Eudemus' ὠκέα γυῖα and Plutarch's ἀγλαὸν εἶδος are genuine, and that each writer is—as he claims to be—quoting from one or other of two different parts of the poem.

THE ORDER OF THE ELEMENTS

Granted the elements were arranged in concentric spheres, in what order were they placed?

Plutarch tells us, as we have seen, that 'nothing heavy was up and nothing light was down'. Earth and water therefore will have been at the centre. Fire and air will have been outermost. But was water inside or outside earth? Was air inside or outside fire?

The accounts of the cosmogony probably enable us to fill in the details. In these accounts fire and air are the uppermost elements, with fire probably outside air. Later, water is separated from earth. Earth therefore is probably the innermost of the four elements.

However, our knowledge of the cosmogony depends largely on secondary accounts which are somewhat contradictory. Since the order of the elements is only marginally relevant to our reconstruction of the cycle, it will be simplest to try and resolve the conflict in the sources in a separate note.[1] Here it will suffice to say that in his description of the state of total separation Empedocles may not have specified the order of the elements any more clearly than Plutarch does. His intentions would have been sufficiently clear from his description of the cosmogony.

[1] See note 7, pp. 287–300 below.

CHAPTER 8

THE CYCLIC SYSTEM

INTRODUCTION

Our arguments hitherto have been put forward on the assumption that there were alternate worlds of increasing Love and increasing Strife within an endless alternation of the one and the many. Taking this framework largely for granted, we have tried to establish the details of the system, the division between movement and rest, the duration of the one and the many, the positions and shapes of Love and Strife, the arrangement of the separated elements. The present chapter turns to look at the assumption that has been underlying our analysis. Was there in fact an alternation between the one and the many? Were there in fact two different worlds, one of Love and the other of Strife increasing?

These questions, it may be thought, should have been asked at the beginning of our analysis. But this would considerably have complicated our presentation of the evidence. For the interpretation of each piece of evidence would either have had to be argued at length, or the conclusions of later chapters would have had to be constantly anticipated. The latter would have been clumsy, while the former procedure would not have been justified by the gravity of the problem. For despite, as we shall see, the opinion of one or two recent scholars, cyclic repetition with worlds of increasing Love and increasing Strife is not so seriously in doubt that it can claim to be the primary focus towards which the interpretation of every piece of evidence should be orientated. This is not to say that serious attention should not be given to the most radical doubts about the cyclic system. But these doubts are not in fact sufficiently well founded for it to be proper for them wholly to determine our exposition of the evidence.

Further, there is a specific advantage in this order of treatment. A number of objections to the cyclic interpretation of Empedocles rest on a false understanding of the character of the cycle implied

in the evidence, and disappear once the evidence for the character of the cycle has been properly analysed.

Early scholars did not on the whole give a great deal of attention to the problem of the cycle. Before Zeller's second edition in 1856 three different views were held, without much argument.

1. The first view was that Empedocles believed in the same system as it was supposed Heraclitus believed in, namely successive worlds interrupted by periods of destruction. These periods of destruction corresponded to the Sphere. No room was given to a time of 'total' Strife, except as an early stage in the formation of the world out of the Sphere. This view may be found in the first edition of Zeller[1] and apparently in Sturz.[2]

2. The second view was that Empedocles believed in essentially the same type of world as Anaxagoras. There was a single generation of the world from the Sphere, followed by fluctuations of Love and Strife for ever after. This view is found in Raynaud.[3]

3. The third view approached the neo-Platonic interpretation. The One was a permanent feature of the world, a permanent expression of order and harmony underlying the structure of the world as we see it. The description of the birth and death of mortal things in fr. 17 was taken to apply only to the birth and death of individuals within a permanent and unshaken world order. This view may by found in Steinhart[4] and in Karsten.[5]

The honour of first perceiving the essentials of alternation in Empedocles belongs to Panzerbieter.[6] The discovery was principally due to Panzerbieter's emendation of θρυφθεῖσα διέπτη to θρεφθεῖσα διέπτη in fr. 17. 5.[7] From this it followed, as Panzerbieter rightly appreciated, that there were two worlds of mortal things from Sphere to Sphere. The one world is born and dies in the process of increasing separation from the one to the many. The other world is born and dies in the process of increasing unification from the many to the one. Panzerbieter also recognized that there would be a period of total separation between the two worlds, and to this he rightly applied Plutarch's description

[1] (1844), pp. 175–7.
[2] Pp. 273 ff. Cf. Brandis (1835), pp. 205–9.
[3] *De Empedocle* (Dissertation, Argentorati, 1849), pp. 14–19 and 25–6.
[4] (1840), p. 94.
[5] Pp. 381–5 and 385–91.
[6] (1844), pp. 1–3.
[7] Pp. 7–8. Cf. below, pp. 164–8.

in the *De facie* of an ἀκοσμία produced by Strife when Love is away.[1]

Panzerbieter's interpretation of the cycle was adopted by Zeller in his second edition,[2] which remains essentially unchanged in the final edition of Zeller's work by Nestle.[3] Zeller however was faced with the task, which Panzerbieter had left largely unattempted, of interpreting the details of cosmogony and zoogony on a system of two worlds. As a result Zeller concluded that while theoretically Empedocles had provided for alternating worlds of increasing Love and increasing Strife there was in fact an 'auffallende Lücke'[4] in place of the description of increasing Strife. All the descriptions of the world and of mortal creatures Zeller referred to the time of increasing Love.

Tannery attacked Zeller's notion of the 'lacune frappante' and held that Empedocles never intended a world of increasing Strife.[5] There was, so Tannery held, a single world from Sphere to Sphere. After a preliminary sorting out of the elements by Strife there was a world where Love and Strife were at war, leading back to the Sphere. Essentially this same view was argued more forcefully and more systematically by von Arnim in 1902.

Zeller was attacked from the opposite point of view by Dümmler.[6] Dümmler filled in the 'auffallende Lücke' by arguing that there were two zoogonies, starting with separate limbs under increasing Love and with whole-natured creatures under increasing Strife. Dümmler was followed by Burnet,[7] by Millerd,[8] and by Bignone, who argued in particular for there being a time of total Strife dividing the two worlds.[9]

Since Bignone the view that there were 'four periods', two periods of total unity and of total separation, and two worlds of increasing Love and increasing Strife, and that there were two

[1] Panzerbieter, p. 2 n. 2. For Plutarch's description see pp. 31–6 and 147–9 above. Although Panzerbieter grasped the essentials of alternation, his interpretation of τοτὲ . . . τοτὲ . . . in fr. 17. 1–2 is not fully cyclic, and for this reason he is classed by Zeller, ZN p. 946 n. 2, rather unfairly, with Steinhart and Karsten.

[2] (1856), Theil 1, pp. 524–31.

[3] ZN, pp. 967–79; for fr. 17 see ZN, p. 946 n. 2.

[4] ZN, p. 978.

[5] *Science hellène*, pp. 317–23.

[6] *Akademika, Beiträge zur Litteraturgeschichte der Sokratischen Schulen* (Giessen, 1889), pp. 217–21.

[7] *EGP*, pp. 234–6 and 242–4.

[8] (1908), pp. 44–7.

[9] Pp. 545–611.

zoogonies (however reconstructed) within both worlds, has been the view of the majority of scholars.[1]

There have been however occasional expressions of radical disbelief. Thus Kranz argued very briefly against the whole notion of cosmic succession in Empedocles.[2] There was, Kranz suggested, a single development from the Sphere to the cosmos, with a state of total separation perhaps prophesied but never described. Kranz adds the rather curious remark that even if there had been progression to a state of total Strife, the process of development of a cosmos would only have begun again, 'Ist sie (i.e. total Strife) aber eingetreten, so beginnt das Spiel von neuem, nur dass die beiden Kräfte die Rollen getauscht haben'.[3] Does this perhaps mean that, as Zeller thought, there was a hypothetical succession of increasing Love and increasing Strife?[4]

Freeman evidently takes a more extreme view than Kranz. She remarks that the Sphere is '"utterly without end" (in time, presumably)'.[5] This would appear to deny even a single generation of the cosmos from the Sphere, to be, in fact, a return to the Platonizing interpretation, whereby the Sphere is eternally coexistent with the sensible world. Freeman apparently also disbelieves in the minor alternation. She writes that the 'alternating sway' of Love and Strife is a fiction of 'later writers'.[6]

In the last few years the situation has changed. There has now been a small series of scholars who have argued at some length against the notion of alternate worlds of increasing Love and increasing Strife and against the whole notion of a succession of the one and the many. Bollack led the way with an article 'Die Metaphysik des Empedokles als Entfaltung des Seins'.[7] This perhaps has influenced some casual remarks in Pfligersdorffer and Solmsen. Pfligersdorffer reverts to Zeller's view that in practice

[1] For references for the 'four-period' view see p. 92 n. 2 above; and for the two zoogonies see pp. 198–9 below.

[2] 'Empedokles und die Atomistik', *Hermes*, 47 (1912), 37–8.

[3] P. 37.

[4] In his later work Kranz seems to have reverted to a more orthodox view, in that there he seems to envisage a succession of worlds (1949), see especially p. 49. But the position of total Strife is still precarious, cf. pp. 5–6 above.

[5] (1946), p. 185 n. 21.

[6] P. 187.

[7] *Philologus*, 101 (1957), 30–54. Cf. p. 160 n. 4 below.

there was no world of increasing Strife.[1] Solmsen doubts that 'a Cosmos forms also in the "period of Love"'.[2] More deliberately, Bollack's approach has been taken up by Minar in 1963, in an article already cited, and by Hölscher, 'Weltzeiten und Lebenszyklus, eine Nachprüfung der Empedokles-Doxographie'.[3] Bollack himself has now come out with a large-scale study, the first volume of three, *Empédocle I, introduction à l'ancienne physique*.[4] Finally, Solmsen has appeared with a long article, 'Love and Strife in Empedocles' cosmology'.[5] The wheel of scholarship has thus turned full cycle. Bollack, Minar, Hölscher and Solmsen take us back in effect to the days before Zeller, to the world of Steinhart and Karsten.[6]

Minar's work is aporematic in style and the conclusions are somewhat ill-defined. The main feature of Minar's reconstruction seems to be that he keeps alternate periods of increasing Love and increasing Strife but rejects any time of total Love or total Strife as hypothetical. Thus at one point Minar concludes, pp. 133–4, 'There is little or nothing to suggest the divine Sphere, as equivalent with the totality of things, at the apogee of Love, in the fragments themselves, in Aristotle or Theophrastus, and also not in the Peripatetic doxographical tradition through which most of our information about his physical philosophy is transmitted'.

[1] (1959), pp. 107–8. Cf. p. 193 below. [2] (1960), p. 364 n. 46.

[3] *Hermes*, 93 (1965), 7–33. Hölscher has also put forward his interpretation in a book, *Empedokles und Hölderlin* (Frankfurt am Main, 1965), especially pp. 26–33. But this is a popular work, and the arguments are given more briefly and in a looser form, so that it has seemed best to limit the present criticisms to the article.

[4] (Paris, 1965). In what follows references will be to the book and not to the article, except where otherwise stated. Bollack's article is in fact considerably less explicit than his book. In his article, Bollack apparently accepts the cycle as Empedocles' literal meaning, pp. 32–3; but then offers a milder version of his non-cyclic interpretation, as a revelation of the true significance for Empedocles of the cycle.

[5] *Phronesis*, 10 (1965), 109–48.

[6] Hölscher's and Solmsen's articles and Bollack's book appeared after the present work had been completed. The present chapter has been rewritten to give more space to objections to the cyclic theory than the author had at first thought would be necessary. The general attitude of Bollack, Hölscher and Solmsen differs so radically from the present reconstruction that it has not been thought necessary to catalogue their opinions on points covered in other chapters.

He writes later, p. 136, 'Even if there were a god Sphere, he would be a veritable *Augenblicksgott*, existing only for a while at a time, at one, or two, stages in the cyclic cosmic process'. Here, apart from the curious notion of a Sphere under total Strife, there is evidently a return of the hypothetical note to be found also in Kranz, and derived perhaps from Zeller, as we observed above.

Hölscher takes as it were the complementary thesis, in that he is concerned primarily to deny alternate worlds of increasing Love and increasing Strife. The notion of a cycle of alternating worlds of increasing Love and increasing Strife is held to have arisen from Aristotle's false interpretation of the fragments and in particular from his invention of periods of rest and movement. The conception of the poem, according to Hölscher, is primarily a biological one, and the fragments speak of death and rebirth only as a permanent scheme of 'Sein trotz Tod' in the life of individuals. This also apparently rules out an alternation of the one and the many, though Hölscher seems hardly to discuss the point.

Bollack's thesis combines that of Hölscher and of Minar, in that Bollack excludes from his reconstruction both the minor alternation of increasing Love and increasing Strife and the major alternation of the one and the many. In other ways Bollack's work is really in a different category from that of Hölscher or Minar. Its content is almost avowedly neo-Platonic, cf. pp. 99–102. The language seems to the present writer in many places imprecise, and on the whole unsuited for the discussion of a Presocratic. Also, the detailed interpretation of several crucial points concerning the overthrowal of the cyclic interpretation has to be gathered from scattered footnotes. A description here of some of Bollack's conclusions may perhaps obviate the need for much detailed criticism.

The principal feature of Bollack's reconstruction seems to be that the Sphere is contemporaneous with the visible world, as in the neo-Platonic interpretation (for which see above, pp. 28–9 and 99–101), and as in Steinhart and Karsten, the latter of whom Bollack once acknowledges on this point, p. 102 n. 1. Thus Bollack writes, p. 63, that 'le devenir du monde est contenu dans la sphère'. Again, p. 34, 'Le dieu lui-même, Sphairos, contient les éléments. Ce n'est pas qu'il soit engendré par eux, étant dieu

immortel. Dans le devenir, il doit être contenu en eux comme une présence et comme la promesse d'un accomplissement'. Cf. p. 116.

The Sphere itself is described in the following terms, p. 88, 'L'Illimité ne se définit ni par rapport à l'espace ni par rapport au nombre; il est ce qui n'a pas de structure, l'Amorphe, l'Indéfinissable'. Apart from having no relation to space the Sphere seems to be outside time, p. 115, 'Tout le devenir s'inscrit dans l'unité brisée, dans la sphère décomposée qui se cherche. L'Amour, maître des impulsions vitales, s'inspire de la perfection renaissante. La sphère est le tout. En elle, les éléments se marient. L'Amour en eux abolit les différences, et la Discorde se confine en une pure absence. Cet état, *comme hors du temps*, figure un Être véritable, immobile, égale à lui-même, n'ayant de rapport qu'avec lui-même, homogénéité du tout' (my italics).

Total Strife is likewise apparently contemporaneous with the visible world, p. 106, 'Aristote nous impose de croire à la séparation des éléments, mais il n'est pas moins certain qu'elle ne doit pas se situer en dehors d'une cosmogonie qui ne se dédouble pas. La séparation totale se situe dans le devenir et ne doit pas être projetée dans cette antisphère qui devait engendrer, dans sa fécondité, un deuxième monde de facture diverse'. He writes of the position of Strife, p. 112, 'Le dehors, qui est son lieu, s'insinue partout, au cours de la constitution des choses'. Strife may in some sense be always apart from the elements, because it is the principle of division (cf. pp. 140–4 above). But Bollack appears to mean that the outside is everywhere. This is a curious reversal of the description of Empedocles' Sphere in Vincent de Beauvais as *sphaera, cuius centrum ubique, circumferentia nusquam.*[1] Vincent's description has considerable intrinsic interest. But it is entirely anachronistic, if applied to Empedocles.

The reason for rejecting a time of total Strife is evidently in part that we cannot picture a complete separation of the elements, p. 111, 'Nous ne pouvons nous faire une idée de la division intégrale, et aucun témoignage ne nous aide à en dessiner la figure'. The reason for Bollack's inability to picture total Strife is perhaps his supposition that the union of individual elements is the result of the attraction of like for like and must therefore be the work of

[1] *Speculum naturale* 1. 4, *Speculum historiale* 1. 1, cf. 3. 44.

Love, pp. 110–11, cf. pp. 106 and 181.[1] Consequently when several pages later Bollack does in fact 'se faire une idée de la division intégrale', p. 166, he thinks of a 'poussière initiale', an idea which derives ultimately from Tannery *via* Rey (see pp. 146–7 above).

It is true that, while denying the notion of worlds of increasing Love and increasing Hate, Bollack still speaks at times of a cycle of the one and the many, e.g. pp. 110 and 112. But even here Bollack's phrases are ambiguous, p. 112, 'L'alternance, *sinon la coïncidence* (my italics), de ces deux temps (*sc.* of Love and Strife) constitue le *cycle*'. The reason for this ambiguity is evidently that accounts of temporal succession are given simply διδασκαλίας χάριν, precisely as the neo-Platonists supposed (see above, p. 28). Thus Bollack writes, p. 89, 'Ce n'est pas l'altérité dans le temps qui caractérise pourtant l'origine (*sc.* of the world), même dans le cas d'Empédocle et d'Anaxagore, bien qu'ils admettent tous deux l'âge de l'imperfection cosmique. L'*Apeiron* ne périt jamais. Quand même on le dépeint comme antérieur, c'est en quelque sorte pour mieux nous faire comprendre la dualité fondamentale'.

A more satisfactory work than that of Bollack's is Solmsen's essay on the subject. Solmsen avowedly sets out to resuscitate von Arnim's thesis, but in considerably greater detail and with more varied arguments.[2] Solmsen argues that the activity of Strife is to produce the main cosmic masses from the Sphere, and that Love then intervenes and produces the zoogony, which returns by successive stages to the unity of the Sphere. There is thus in effect a single cosmos from Sphere to Sphere, with no zoogony under increasing Strife, and no non-cosmic period of total separation. Solmsen's work makes a more detailed use of the evidence, and provides a more coherent whole than that of Bollack, Hölscher or Minar. It has seemed preferable therefore to review his arguments together, after our own presentation of the evidence, rather than attempt to deal with his thesis piecemeal, as individual points arise.

In the sections that follow therefore we shall examine first fr. 17, where, if anywhere, Empedocles describes the succession of the

[1] The relation of Love to the principle of like to like is discussed below, pp. 305–13.

[2] For von Arnim's view see p. 158 above, acknowledged by Solmsen on p. 110 of his article.

one and the many, and where in particular, in lines 3–5, he describes alternate worlds of increasing Love and increasing Strife. We shall then summarize the testimony of Aristotle and very briefly that of Plato and later writers.

FRAGMENT 17

In fr. 17. 3–5 Simplicius' manuscripts, *Phys.* 158. 3–5, have:

δοιὴ δὲ θνητῶν γένεσις, δοιὴ δ' ἀπόλειψις·
τὴν μὲν γὰρ πάντων σύνοδος τίκτει τ' ὀλέκει τε,
ἡ δὲ πάλιν διαφυομένων θρυφθεῖσα δρεπτή.

θρυφθεῖσα D F. δρυφθεῖσα E.

δρεπτή was emended to διέπτη by Scaliger.[1] The word itself, διαπέτεσθαι, seems eminently suitable to its context. Ἀποπέτεσθαι is used in an image of death in fr. 2. 4,

ὠκύμοροι καπνοῖο δίκην ἀρθέντες ἀπέπταν.

The reminiscence probably stems from Homer, *Il.* 2. 71, where a dream ὤιχετ' ἀποπτάμενος. This image is applied in the *Odyssey*, 11. 222, to the departure of the soul,

ψυχὴ δ' ἠύτ' ὄνειρος ἀποπταμένη πεπότηται.

The phrase οἴχεται ἀποπτάμενος is used by Plato to describe the flight of Love, *Symp.* 183 E. In the *Phaedo* Plato changes this to διαπέτεσθαι to describe the soul's departure from the body, 70 A: ἐκβαίνουσα ὥσπερ πνεῦμα ἢ καπνὸς διασκεδασθεῖσα οἴχηται διαπτομένη. The use of the δια- prefix in fr. 17 may be explained, if explanation is needed, by the use of διαφύεσθαι in the immediate context: διέφυ in line 2, and διαφυομένων in line 5. Similarly in Plato διαπτομένη is preceded by διασκεδασθεῖσα.

There remains an obvious imbalance in lines 4 and 5. Karsten proposed τίκτει τ' αὔξει τε. This makes line 4 describe generation only, and line 5 describe dissolution only. The perfect solution was found by Panzerbieter, θρεφθεῖσα διέπτη. This makes each line describe both generation and dissolution.

[1] There are a few notes by Scaliger in some issues of *Poesis philosophica, vel saltem, reliquiae poesis philosophicae, Empedoclis*, etc., excudebat H. Stephanus 1573: Empedocles, pp. 17–31, with notes by Scaliger on p. 216. A larger unpublished collection of *Adversaria*, presumably including the present emendation, is described by Karsten in the preface to his work on Empedocles.

So immediately convincing is Panzerbieter's emendation that in over a century it has been rejected by only two scholars, von Arnim,[1] and Hölscher.[2] Von Arnim silently reverts to the manuscript reading without even mentioning Panzerbieter's emendation. Hölscher writes, 'Dass θρυφθεῖσα aus dem so viel einfacheren θρεφθεῖσα verschrieben wäre, ist schon an sich unwahrscheinlich'.

In fact the reason why θρεφθεῖσα has become corrupted to θρυφθεῖσα is fairly plain to see. There was commonly supposed to be a correlation between death and separation and between birth and mixture.[3] In particular a number of writers, commenting on fr. 8, attribute this correlation specifically to Empedocles.[4] Probably therefore the corruption θρυφθεῖσα διέπτη has arisen, or at least has been perpetuated, because it was thought that the effect of separation, πάλιν διαφυομένων, should be death simply, not death and increase.

Covotti rejects Zeller's interpretation of the fragment, which follows Panzerbieter's emendation, precisely on the grounds that it would deny what Covotti supposes to be 'la dottrina empedoclea' that death takes place only through separation.[5] It is doubtful, however, how far the exclusive correlation of death and separation is genuinely Empedoclean. The correlation need not be implied in fr. 8, despite the ancient authorities, who understand the lines to that effect (see footnote 4). In fr. 9 Empedocles says that when things are mingled,

> τότε μὲν τὸ ν⟨έμουσι⟩ γενέσθαι,
> εὖτε δ' ἀποκρινθῶσι, τὸ δ' αὖ δυσδαίμονα πότμον·
> ⟨οὐ⟩ θέμις ⟨ἦι⟩ καλέουσι, νόμωι δ' ἐπίφημι καὶ αὐτός.[6]

[1] (1902), pp. 25–6.

[2] (1965), p. 31. Also Wilamowitz, *ap.* DK: these entries represent notes in Wilamowitz's copy of *Fragmente der Vorsokratiker*, see DK, vol. 1, p. 483. Wilamowitz is not cited in the text, since it is not clear how far these marginalia are intended to represent Wilamowitz's mature opinion.

[3] See fr. 9 quoted below; Aetius 1. 30. 2 on Anaxagoras (not in DK); Plato, *Laws* 893 E, quoted by Simplicius, *Phys.* 1267. 20–8 and 1272. 38–1273. 12; and Hippocrates, *De victu* 1. 4 = vol. 6, pp. 474–6 Littré.

[4] Plutarch, *Adv. Col.* 1112 A. Simplicius, *Phys.* 161. 18–20, cf. 180. 25–30 and 235. 20–3. The author of *De MXG*, 975 b 6–14. There is probably the same implication in Aetius 1. 30. 1 (cf. DK 31 B 8), cf. 30. 2 (not in DK).

[5] (1901), p. 153 n. 1.

[6] ν⟨έμουσι⟩ Burnet, *EGP*, p. 206 n. 1; cf. νόμωι. ⟨οὐ⟩ θέμις ⟨ἦι⟩ for ἡ or ἦι θέμις Wilamowitz (1930), p. 246.

But this does not make it at all clear that on his own principles Empedocles believes that mixture is the cause only of birth and that death is always the result of separation. The only explicit evidence for the invariable correlation of death and separation is in Aetius: 'Εμπεδοκλῆς τὸν θάνατον γίγνεσθαι διαχωρισμῶι τοῦ πυρώδους ⟨καὶ ἀερώδους καὶ ὑδατώδους καὶ γεώδους add. Diels⟩, ἐξ ὧν ἡ σύγκρισις τῶι ἀνθρώπωι συνεστάθη.[1] But even if what Aetius says is true of individuals in the present world, or in both worlds (and if that is the implication of fr. 8), this cannot determine the interpretation of fr. 17. Fr. 17 is concerned not with individuals simply, as is Aetius, but with the generation and decay of mortal creatures as a whole. On a *cosmic* scale, line 4 clearly says that *coming together* is the cause of birth and *destruction*. Equally in line 5 *separation* can be the cause of *increase* and dissolution.[2]

We turn to the interpretations that have been given of the sense of lines 3–5. With Panzerbieter's emendation, Stein and Mullach explained that the meaning of the lines was that the birth of one thing was at the same time the death of another and *vice versa*. It is significant that this was precisely the interpretation given earlier by Karsten, 'alterius vita mors sit alterius, et contra'. Karsten, however, had changed δοιή in line 3 to τοίη, ὀλέκει in line 4 to αὔξει, and retained θρυφθεῖσα in line 5. The fact that this interpretation arose initially from so corrupt a version of the lines should be a warning of its weakness.

Von Arnim, reverting to θρυφθεῖσα, explained the lines in essentially the same way as Karsten, Stein and Mullach, with reference however not to mortal things in general, but to the death and rebirth of the Sphere, 'Die ἀπόλειψις der πολλά ist die γένεσις des ἕν, die ἀπόλειψις des ἕν ist die γένεσις der πολλά'.[3]

Hölscher, also reverting to θρυφθεῖσα, also seems to explain the lines in essentially the same way as Karsten. He speaks, p. 31, of the 'fast paradoxen Simultaneität' of the two verbs in line 4, and continues, 'Tatsächlich beruht ja die ganze Ernährungs- und Wahrnehmungstheorie des Empedokles auf dem "doppelten"

[1] 5. 25. 4 (DK 31A85).
[2] For the correlation of separation and increase see further pp. 314–19 below.
[3] (1902), p. 26.

Wesen des Werdens, auf Verbindung durch Trennung... Und wer da sagte, dass "die Unsterblichen sterblich wurden" (B 35, 14), mochte wohl dies Werden auch einen Untergang nennen (ὀλέκει)."[1]

Bollack is apparently thinking along similar lines. The explanation in his article incorporates precisely Karsten's formula: 'Das eine Sein ist auch Leben; und auch als solches wird es entzweit zu Leben und Tod, und auch diese Entzweiung des Seins als Leben wird wieder entzweit, insofern auch Leben und Tod ineinander übergehen und *des einen Leben des andern Tod ist*' (my italics).[2] In his book Bollack is content with a loose paraphrase of the verses: 'Le double mouvement qui rythme les avatars du Tout se retrouve dans la dualité à laquelle sont soumis les êtres mortels. Il n'y est pas proprement question du cycle cosmique, mais de la dualité fondamentale qui s'exprime dans le temps', etc.[3]

Karsten's interpretation, in all its forms, breaks down on Panzerbieter's emendation of line 5. For the interpretation of Karsten and his followers entails that what is generated should be other than what is destroyed. (Hölscher in the passage quoted possibly intends to modify this second point in some way.) But this is impossible, given Panzerbieter's emendation. For the things intended as the objects of τίκτει and ὀλέκει could conceivably be different: 'the coming together of all things brings (some things) to birth and (thereby) destroys (other things)', or, as von Arnim wishes, 'the coming together of all things brings (the one) to birth and (thereby) destroys (the many)'. But in line 5 it is impossible for what is born, θρεφθεῖσα, to be *other* than what is destroyed, διέπτη.

Thus Karsten's interpretation cannot survive Panzerbieter's emendation. But no emendation which has to reject Panzerbieter's emendation and so destroys the parallelism with line 4 can be convincing.

Once θρεφθεῖσα διέπτη is restored, it is impossible to understand the lines except as Panzerbieter and Zeller understood them.

[1] For what I believe to be the correct interpretation of the phrase from fr. 35 see p. 117 above.

[2] (1957), p. 35.

[3] (1965), pp. 118–19.

There are two ways of coming into being and there are two ways of passing away. One pair, one set of coming into being and passing away, is the result of everything coming together. The other pair is the result of everything being drawn apart.

These verses therefore, and the rest of fr. 17, establish beyond reasonable doubt the existence of the cosmic cycle, and its essential nature.

It is true that these verses do not tell us what happens when things have become one;[1] nor what happens when they have become many. For the description of the Sphere the listener will have had to wait for frr. 27, 27a, 28 and 29 (cf. pp. 19–25 above). For the description of total separation the listener will have had to wait for fr. 26a and the verses which Plutarch has paraphrased (see pp. 31–6 and 149–54 above). For the transition from the one to the many the listener will have had to wait for frr. 30 and 31 (cf. pp. 20–1 and 80–5 above and 274–5 below). For the transition from total separation to the process of increasing unity the listener will have had to wait for fr. 35 (cf. pp. 106–20 above).

What fr. 17 does tell us is, first, that there is a never-ending succession of the one and the many, lines 1–2,

> δίπλ' ἐρέω· τοτὲ μὲν γὰρ ἓν ηὐξήθη μόνον εἶναι
> ἐκ πλεόνων, τοτὲ δ' αὖ διέφυ πλέον' ἐξ ἑνὸς εἶναι.

Secondly, lines 3–5 tell us that *both* the process of increasing unification *and* the process of increasing separation bring forth, and then destroy, a world of mortal creatures,

> δοιὴ δὲ θνητῶν γένεσις, δοιὴ δ' ἀπόλειψις·
> τὴν μὲν γὰρ πάντων σύνοδος τίκτει τ' ὀλέκει τε,
> ἡ δὲ πάλιν διαφυομένων θρεφθεῖσα διέπτη.[2]

[1] With the slight exception of verse 8a restored from fr. 26, see pp. 323–4 below.

[2] The aorists ηὐξήθη and διέπτη, which Hölscher, pp. 29 and 31 n. 2, supposes are inconsistent with the description of a never-ending cosmic cycle, may be explained either as gnomic aorists or historically, as a description of the parts of the cycle which last occurred. The gnomic use is the more likely. But the historical explanation is possible in so far as increasing Love was regularly thought of as in the past (see pp. 174–5 below), which would account for ηὐξήθη. Similarly, in διέπτη Empedocles could be describing the world of increasing Strife which last occurred.

ARISTOTLE

Aristotle several times makes it clear that he understands Empedocles in terms of a cycle with an endless succession of the one and the many and with alternate worlds of increasing Love and increasing Strife.

1. We have already examined at length the passages at the beginning of the last book of the *Physics* where Aristotle says that Empedocles' world alternated between rest and movement, and in particular where Aristotle makes it clear that the time of movement is divided into a period where Love makes the elements one from many and a period where Strife makes the elements many from one.[1]

In the first book of the *Physics* Aristotle repeats the contrast between Empedocles' cyclic system and Anaxagoras' single generation of the cosmos. One group of physicists generate the world by the thickening and thinning of a single substrate. Aristotle then continues, 187a20–6:

οἱ δ' ἐκ τοῦ ἑνὸς ἐνούσας τὰς ἐναντιότητας ἐκκρίνεσθαι, ὥσπερ Ἀναξίμανδρός φησι, καὶ ὅσοι δ' ἓν καὶ πολλὰ φασιν εἶναι, ὥσπερ Ἐμπεδοκλῆς καὶ Ἀναξαγόρας· ἐκ τοῦ μίγματος γὰρ καὶ οὗτοι ἐκκρίνουσι τἆλλα. διαφέρουσι δὲ ἀλλήλων τῷι τὸν μὲν περίοδον ποιεῖν τούτων (i.e. Empedocles), τὸν δ' ἄπαξ (i.e. Anaxagoras), καὶ τὸν μὲν (i.e. Anaxagoras) ἄπειρα, τά τε ὁμοιομερῆ καὶ τἀναντία, τὸν δὲ (i.e. Empedocles) τὰ καλούμενα στοιχεῖα μόνον.

By collating passages from the *De caelo* and the *De generatione et corruptione* we have argued that Aristotle did not suppose there to be two periods of rest in the cycle. The only time of rest was the Sphere. Under total Strife the elements were moving (pp. 7–19). We have argued further, in note 1, that Aristotle's evidence cannot therefore be founded on a simple misunderstanding of ἀκίνητοι in fr. 26. For Aristotle thinks of only one rest period, the Sphere, and his note on fr. 26 shows that he cannot have understood the verses in a way that would refer the last line with ἀκίνητοι exclusively to the Sphere (see pp. 253–7 below).

[1] 250b26–252a5 and 252a5–32, see pp. 7–19 and 59–69.

Our arguments, if accepted, do away with the objections that have been brought against Aristotle's evidence at this point by von Arnim and Hölscher.

No rest under total Strife does away with von Arnim's objection, 'Von dem voraufgehenden Stadium würde es (total Strife) sich nur unterschieden haben... dadurch, dass vollständige Ruhe an Stelle des Kampfes und der Bewegung getreten war. Und diese Grabesruhe sollte der Leser als reinste Ausgestaltung der Macht des Streites hinnehmen? Ich meine, nur ein Zustand der ἀκοσμία und ἀταξία, des wilden Kampfes konnte das Gegenbild des Sphairos sein'.[1]

No rest under total Strife also undermines Hölscher's objection that Aristotle's own theory of rest between opposed movements has led Aristotle to invent alternate worlds of increasing Love and increasing Strife, separated by intervals of rest, from fragments that describe the growth and decline of living creatures.[2] Aristotle's theories on the continuity and discontinuity of movement have influenced Simplicius', but not Aristotle's account of Empedocles. For Aristotle knew that under total Strife the elements were not at rest, as they would have had to be if Aristotle had simply applied to Empedocles his own principles.[3]

2. There are two clear statements of alternation in the *Metaphysics* and the *De caelo*:

Met. 985 a 21–9. καὶ Ἐμπεδοκλῆς ἐπὶ πλέον μὲν τούτου (*sc.* Anaxagoras) χρῆται τοῖς αἰτίοις, οὐ μὴν οὔθ' ἱκανῶς, οὔτ' ἐν τούτοις εὑρίσκει τὸ ὁμολογούμενον. πολλαχοῦ γοῦν αὐτῶι ἡ μὲν φιλία διακρίνει τὸ δὲ νεῖκος συγκρίνει. ὅταν μὲν γὰρ εἰς τὰ στοιχεῖα διίστηται τὸ πᾶν ὑπὸ τοῦ νείκους, τό τε πῦρ εἰς ἓν συγκρίνεται καὶ τῶν ἄλλων στοιχείων ἕκαστον· ὅταν δὲ πάλιν ὑπὸ τῆς φιλίας συνίωσιν εἰς τὸ ἕν, ἀναγκαῖον ἐξ ἑκάστου τὰ μόρια διακρίνεσθαι πάλιν.

De caelo 279 b 14–17. οἱ δ' ἐναλλὰξ ὁτὲ μὲν οὕτως ὁτὲ δὲ ἄλλως ἔχειν φθειρόμενον (*sc.* τὸν οὐρανόν or τὸν κόσμον φασίν), καὶ τοῦτο αἰεὶ διατελεῖν οὕτως, ὥσπερ Ἐμπεδοκλῆς ὁ Ἀκραγαντῖνος καὶ Ἡράκλειτος ὁ Ἐφέσιος.

[1] (1902), p. 20.

[2] (1965), pp. 10–11.

[3] See pp. 18–19 and 29 above. Hölscher adds the refinement on Cherniss, cf. pp. 17–18 above and 253 below, that the discussion of opposed movements in the fifth book of the *Physics* was originally written in conjunction with the matter of the eighth book.

This is repeated more fully 280a 11–24.

τὸ δ' ἐναλλὰξ συνιστάναι καὶ διαλύειν οὐθὲν ἀλλοιότερον ποιεῖν ἐστὶν ἢ τὸ κατασκευάζειν αὐτὸν ἀίδιον μὲν ἀλλὰ μεταβάλλοντα τὴν μορφήν, ὥσπερ εἴ τις ἐκ παιδὸς ἄνδρα γινόμενον καὶ ἐξ ἀνδρὸς παῖδα ὁτὲ μὲν φθείρεσθαι ὁτὲ δ' εἶναι οἴοιτο· δῆλον γὰρ ὅτι καὶ εἰς ἄλληλα τῶν στοιχείων συνιόντων οὐχ ἡ τυχοῦσα τάξις γίγνεται καὶ σύστασις, ἀλλ' ἡ αὐτή, ἄλλως τε καὶ κατὰ τοὺς τοῦτον τὸν λόγον εἰρηκότας, οἱ τῆς διαθέσεως ἑκατέρας αἰτιῶνται τὸ ἐναντίον. ὥστ' εἰ τὸ ὅλον σῶμα συνεχὲς ὂν ὁτὲ μὲν οὕτως ὁτὲ δ' ἐκείνως διατίθεται καὶ διακεκόσμηται, ἡ δὲ τοῦ ὅλου σύστασίς ἐστι κόσμος καὶ οὐρανός, οὐκ ἂν ὁ κόσμος γίγνοιτο καὶ φθείροιτο, ἀλλ' αἱ διαθέσεις αὐτοῦ. τὸ δ' ὅλως γενόμενον φθαρῆναι καὶ μὴ ἀνακάμπτειν ὄντος μὲν ἑνὸς ἀδύνατόν ἐστιν.

It is no prejudice at all, as Hölscher supposes, to the description in the *Physics* of the succession of the one and the many and the alternation thereby of rest and movement that Aristotle should here, in the *Metaphysics* and the *De caelo*, describe primarily the alternation between increasing unification and increasing separation.[1] Aristotle's selection of each alternation is entirely explained by the context of his reports.

In the *Metaphysics* Aristotle is contrasting Anaxagoras' introduction of mind with Empedocles' less consistent use of two moving principles. The inconsistency that separation demands union and *vice versa*, a complication which we shall suggest Empedocles can be seen avoiding in fr. 22 (see pp. 311–12), is more easily expressed in terms of the process and not the result of unification and separation.

In the *De caelo* Aristotle is collecting various theories of eternal and non-eternal worlds. It is natural for him therefore to deal with Empedocles' periods of world order and not with the non-cosmic periods of total Love and total Strife.

In the *Physics*, on the other hand, the analysis of eternal and non-eternal worlds is made to include the Sphere because the analysis is concerned with theories of rest and movement that are entailed by theories of an eternal or a non-eternal world. From this difference of approach in the *Physics* it does not at all follow,

[1] (1965), pp. 9–10.

as Hölscher supposes, that the analysis in the *Physics* contains elements which Aristotle's own imagination has grafted on to the (allegedly) simpler analysis of the *Metaphysics* and the *De caelo*.[1]

3. At *De gen. et corr.* 334a5–9 Aristotle has written:

ἅμα δὲ καὶ τὸν κόσμον ὁμοίως ἔχειν φησὶν ἐπί τε τοῦ νείκους νῦν καὶ πρότερον ἐπὶ τῆς φιλίας· τί οὖν ἐστὶ τὸ κινοῦν πρῶτον καὶ αἴτιον τῆς κινήσεως; οὐ γὰρ δὴ ἡ φιλία καὶ τὸ νεῖκος, ἀλλά τινος κινήσεως ταῦτα αἰτία· εἰ δ' ἔστιν, ἐκεῖνο ἀρχή.

This criticism is 'dunkel' both for von Arnim[2] and for Hölscher.[3] The words are immediately clear in the light of the 'mortal things' that in fr. 17 are produced both by the coming together of all things and by their growing apart. The two worlds of 'mortal things' will be similar in that there will be living creatures including men and women in both worlds (see especially pp. 209–18 below). Also, as in the *Politicus* 271c, there will be a sun, moon and stars in both worlds. This is implied by there being living creatures including men and women in both worlds. It is also implied by Aristotle's criticism (number 4 below, pp. 175–7), that Empedocles failed to describe the origin of the world masses under increasing Love. There *were* world masses, Aristotle's criticism implies, but Empedocles did not describe their origin.

Ἐπὶ τῆς φιλίας or φιλότητος is used twice elsewhere, in the *De caelo* and in the *De generatione animalium*, to describe the formation of animal parts at the beginning of a zoogony.[4] The animal parts are later joined together by Love and so belong to a period of increasing mixture (see pp. 200–3 below). They differ therefore from the whole-natured creatures which are formed by the separation of fire and are later split apart to form the generation of men and women that exists now (see pp. 203–9 below). Thus

[1] The confusion over Heraclitus in the first passage of the *De caelo*, and the possible influence on Aristotle's analysis of Plato in the *Sophist* (for which see Kirk, *Heraclitus*, pp. 320–1), has no immediate effect on what Aristotle says about Empedocles. For the origin of the man-child metaphor in the later passage of the *De caelo* see pp. 94 and 126 above.

[2] (1902), pp. 19–20. [3] (1965), p. 25.

[4] *De caelo* 300b25–31, *De gen. anim.* 722b17–20 and b26. The phrase also occurs in παραλείπει τὴν ἐπὶ τῆς φιλότητος, which we discuss as number 4 below, pp. 175–7.

ἐπὶ τῆς φιλότητος or ἐπὶ τῆς φιλίας, in the *De caelo* and in the *De generatione animalium*, as here in the *De generatione et corruptione*, is used to describe the period of increasing mixture when Love makes things one from many, as opposed to the present world of increasing separation. Theophrastus uses ἐπὶ τῆς φιλίας in precisely this sense (see p. 178 below). Simplicius explains the phrase very much in this sense when he is commenting on the formation of animal parts in the *De caelo*, although the distinction between increasing Love and increasing Strife is very much less obvious on Simplicius' Platonizing interpretation (see pp. 200–1 below).

Zeller explains ἐπὶ τῆς φιλίας in the present passage as the Sphere.[1] He is followed by Kranz,[2] Hölscher,[3] and Bollack.[4] But this is impossible except on the implausible and unnecessary assumption that ἐπὶ τῆς φιλίας or φιλότητος has two quite different meanings in Aristotle: the Sphere in the present passage, and increasing Love in the *De caelo* and the *De generatione animalium*.[5]

Further, the world now is not like the Sphere in any very obvious sense, except in so far as it is round (or more or less round),[6] and in so far as ultimately it is composed of the same elements.[7] Hölscher argues that the similarity lies in the fact that in the Sphere, according to Aristotle, the elements retain their qualities of light and heavy and their natural movements or the reverse of them. This Hölscher argues from Aristotle's remark shortly before this, 333b30–1, that Love moves earth upwards, a remark which Hölscher applies to the Sphere. But Love's movement of earth upwards does not describe the Sphere, where as

[1] ZN, p. 976 n. 1.
[2] (1912), p. 37 n. 2.
[3] (1965), pp. 25–6.
[4] (1965), pp. 91 and 104.
[5] The only remedy would be the Platonizing interpretation of animal parts born ἐπὶ τῆς φιλίας as Forms belonging to the intelligible world of the Sphere. This is perhaps Bollack's intention. He writes, (1965), p. 72, 'En fait, Aphrodite a créé des types définitifs, des *modèles* de membres, et la forme de toutes les parties du corps des animaux et des hommes fut façonnée un jour par elle', cf. p. 75, 'L'Un contient le développement des formes' and 'Contenant les formes, l'Un s'identifie nécessairement avec tout ce qui croît'. For this Platonizing view see Alexander *ap.* Simpl. *De caelo* 586. 25–587. 26.
[6] According to Aetius 2. 31. 4 (DK 31A50) the world now is egg-shaped.
[7] Cf. the passage from *De caelo* 280a11–24 quoted under 2 above, p. 171.

Aristotle knew the elements are at rest (see pp. 7–15 above). Again it is under *increasing* Love that in order to mingle the elements earth must move away from the centre (cf. pp. 14 n. 1 and 35–6 above).

Von Arnim seems to suppose that because Aristotle is dealing with cosmic movements therefore he cannot have in mind anything to do with living creatures in the periods of increasing Love and increasing Strife. Von Arnim writes 'Da es sich an der aristotelischen Stelle nach dem Zusammenhange um die Ursache der kosmischen Bewegung handelt und bewiesen werden soll, dass Νεῖκος und Φιλία für diese nicht ausreichende Erklärungsprincipien bilden, so können auch jene dunkeln Worte nur auf die kosmische Bewegung, nicht etwa auf die Vertheilung der Stoffe oder auf die Existenz organischer Wesen gedeutet werden'.[1] It is true that in this brief criticism Aristotle does not tell us anything directly about the contents of either world, or about the living creatures that are born in them. The full implication of ὁμοίως ἔχειν would have to be supplied by his listeners from their knowledge of the poem, and may be gleaned by us from the descriptions already cited (which von Arnim does not discuss) of the growth of animal parts ἐπὶ τῆς φιλότητος, i.e. in the world that the present passage tells us is *other* than our own.

Possibly von Arnim supposes that the present criticism should be identical with the similar criticism in the last book of the *Physics*, 252a3–32, which, if our analysis is correct (see pp. 59–69 above), demands a first cause for the major alternation, the alternation of *rest* and movement. But the two criticisms are not identical. The present passage demands a first cause for the minor alternation, that is the alternation of *similar* worlds, worlds therefore of increasing Love and increasing Strife, which the formulae of the *Physics* show are contained within one half of the major alternation, the half which is movement.

We may observe that Aristotle's πρότερον shows that the world of increasing Love, though of course a constantly recurring feature of the world cycle, was thought of as in the past. This is confirmed by several other pieces of evidence.

[1] (1902), pp. 19–20.

First, both Aristotle and Theophrastus use τότε when speaking of Love's world. Aristotle compares what happens in the womb according to some theories of generation with what happened inside the earth in Love's zoogony. He writes, ὥσπερ τότε ἐν τῇι γῆι ἐπὶ τῆς φιλότητος.[1] Theophrastus also uses τότε when arguing that sensation would be impossible under increasing Love.[2]

Again, Aristotle uses a combination of present and past tenses when criticizing the world of increasing Love in the light of what happens in the present world: he writes of monsters, ἀπώλετο καὶ ἀπόλλυται.[3]

Simplicius writes directly, *De caelo* 590. 19–21: συγκρινόμενα γὰρ πρότερον ὑπὸ τῆς φιλίας τὰ στοιχεῖα ὕστερον ὑπὸ τοῦ νείκους διακρινόμενα τόνδε τὸν κόσμον ποιεῖν λέγει (*sc.* Empedocles).

There are signs that in thinking of increasing Love as in the past Aristotle, Theophrastus and Simplicius are following Empedocles' own practice. In fr. 35, as we have seen, Empedocles describes the world of increasing Love and uses the past tenses, ἵκετο, χεῖτο, ἔστηκε, ἔρυκε and so on, though the tense and mood of other verbs, γένηται and συνέρχεται, in part generalizes these same events (see pp. 106–20). The zoogony of increasing Love we know was described earlier in the poem than that of increasing Strife (see pp. 204–5 below). Increasing Love is regularly mentioned before increasing Strife in the extant fragments, frr. 17, 20 and 26.[4]

4. At *De caelo* 301 a 15–16 Aristotle remarks, διὸ καὶ Ἐμπεδοκλῆς παραλείπει τὴν ἐπὶ τῆς φιλότητος. The context is quoted in full above (p. 10).

Zeller explains ἐπὶ τῆς φιλότητος in this passage once as in-

[1] *De gen. anim.* 722 b 24–6, see pp. 200–3 and 219 below: for τότε some mss. have τὸ.

[2] *De sens.* 20, see p. 178 below.

[3] *Phys.* 198 b 29–32, quoted in full and discussed below, pp. 216–17; for the placing of monsters in Love's world see pp. 200–3.

[4] Fr. 21. 7–8 is an exception because in the preceding lines Empedocles has been describing particularly the present world. Fr. 22 does not describe precisely the alternation of increasing Love and increasing Strife, though Love's activity is still mentioned before that of Strife, cf. pp. 305–12 below. On fr. 26. 1 see pp. 319–20 below. Lucretius on one occasion speaks of Love's world before that of Strife, see pp. 270–1 below.

creasing Love[1] and once as increasing Strife.[2] Bollack apparently explains ἐπὶ τῆς φιλότητος in the present passage as the world which leads away from the Sphere, and so in effect as increasing Strife.[3] Simplicius understands τὴν (*sc.* διάθεσιν τῶν στοιχείων) and refers the expression to the Sphere, *De caelo* 590. 24–591. 7.

In fact in the present passage ἐπὶ τῆς φιλότητος clearly means the world of increasing Love. For this is the only world which would have had to start from a state of separation and would have had to proceed by way of increasing mixture, which is what is implied by the context of Aristotle's remark.

In this way ἐπὶ τῆς φιλότητος in the present passage of the *De caelo* has precisely the meaning which we have argued it must have in the passages we have cited under 3 above, p. 172, from earlier in the *De caelo*, from the *De generatione animalium*, and from the *De generatione et corruptione*.

Aristotle's words are not intended to mean that from Aristotle's present point of view Empedocles could have had *no cosmos at all* under increasing Love, which is the meaning Cherniss argues for.[4] As we have seen under 3 above, pp. 172–4, Aristotle several times, once only shortly before the present passage, mentions the formation of animal parts as occurring ἐπὶ τῆς φιλότητος. As Bignone had explained,[5] followed by Robin,[6] Aristotle's words have the much more specific meaning that Empedocles failed to describe τὴν (*sc.* τοῦ οὐρανοῦ γένεσιν), i.e. the formation of the main cosmic masses, under increasing Love. This is plain from the words which follow, 301 a 16–18: οὐ γὰρ ἂν ἠδύνατο συστῆσαι τὸν οὐρανὸν ἐκ κεχωρισμένων μὲν κατασκευάζων (*sc.* τῶν στοιχείων), σύγκρισιν δὲ ποιῶν διὰ τὴν φιλότητα.

[1] ZN, p. 976 n. 1.

[2] ZN, p. 986 n. 4. As Millerd observes (1908), pp. 50–1, this means that Zeller gives ἐπὶ τῆς φιλότητος or φιλίας three different meanings in all, since in the passage quoted as 3 above from the *De generatione et corruptione* Zeller refers the phrase to the Sphere, as we have seen, p. 173 above. The same phrase in the passages cited above, p. 172, from earlier in the *De caelo* and from the *De generatione animalium* Zeller explains as increasing Love, in the same note in which the phrase in the present passage is said to mean increasing Strife, p. 986 n. 4.

[3] (1965), p. 55 n. 3.

[4] *ACP*, pp. 194–6.

[5] P. 560 n. 2.

[6] (1923), p. 127 n. 3.

It is difficult fully to appreciate the force of von Arnim's and Hölscher's remarks on this passage.[1] They apparently take Aristotle to mean that Empedocles leaves out a description of the world under increasing Love because there never was a time when the elements were fully separated, i.e. there never was a time of total separation from which a world of increasing Love could have begun. A similar idea is found in Simplicius, commenting on a different passage, as an outcome of his Platonizing interpretation of Empedocles (see p. 262 below). But this is clearly not the implication of the present passage. If Empedocles had never had any fully separated elements, there would have been no obvious occasion for him to exemplify the illogicality of needing to produce a world from them.

There are further indications in Aristotle of the alternation between increasing Love and increasing Strife, which we need not go into here at length. The criticism in the *Physics* which contrasts whole-natured creatures and monsters depends on the notion of two worlds with mortal creatures in them (see pp. 208–9 below). The criticism of the *dine* in the *De caelo*, which Hölscher again finds 'für uns so dunkel wie für die alten Kommentatoren',[2] is also best explained on the theory of two worlds with movements of the elements therefore in opposite directions (see note 2, pp. 262–5 below).

PLATO AND LATER WRITERS

1. Plato clearly describes the alternation between the one and the many in the *Sophist*, 242D–243A (see pp. 93–4 above). The alternation between increasing Love and increasing Strife is parodied in the *Politicus* myth, 269C–275A (see pp. 94–8 above).

It is impossible to explain away the clear distinction between Heraclitus and Empedocles in the *Sophist*, as Bollack tries to do: 'Comparant cette doctrine (that of Empedocles) à celle d'Héraclite, Platon peut parler d'un relâchement transitoire de la lutte, résorbée dans l'Un. Cependant, sitôt qu'on l'étudie en elle-même, l'interruption se situe dans le monde même où nous voyons l'Un succéder sans cesse au Multiple.'[3] This obliterates precisely the

[1] (1902), pp. 18–19 and (1965), pp. 21–2 respectively.
[2] (1965), p. 19.
[3] (1965), p. 124.

distinction between the two philosophers which it is the point of Plato's passage to establish.

2. Theophrastus twice criticizes Empedocles in terms of the alternation between increasing Love and increasing Strife. In the *De causis plantarum* he asks how fish could have moved from dry land to sea 'if they were like those now', 1. 21. 5 and 22. 2–3. He is here describing Love's action in moving hot animals to a cold habitat as part of her mixing of the elements, discussed more fully in a moment (pp. 189–95). In the *De sensibus* he argues that there can be no sensation under increasing Love because things are then coming together and so there can be no effluences, chapter 20: συμβαίνει δὲ καὶ ἐπὶ τῆς φιλίας ὅλως μὴ εἶναι αἴσθησιν ἢ ἧττον διὰ τὸ συγκρίνεσθαι τότε καὶ μὴ ἀπορρεῖν. (Cf. pp. 175 above and 264 below.)

3. In Plutarch's *De facie* there is a clear description of total Strife, 926D–927A (see pp. 31–6 and 147–54 above). Hölscher completely misrepresents the significance of this passage.[1] He supposes that the movement of the elements in Plutarch's account is inconsistent with Aristotle's (alleged) description in the *Physics* of the fully separated elements as at rest. Plutarch's quotation of verses is again confused with verses which Simplicius has quoted to describe the Sphere (see pp. 149–54). Hölscher supposes, quite unnecessarily, that ἔνθ' οὔτ' ἠελίοιο διείδεται (Hölscher's reading for δεδίσκεται) ἀγλαὸν εἶδος could not apply to a time when fire was fully separated from the other elements. As we have seen, for Plutarch and for Empedocles total separation of the elements would be a non-cosmic state, when therefore sun, land and sea would not be visible in the form in which we know them now (see pp. 152–3). Hölscher also comments on the difference of reading between Plutarch and Simplicius as a mere 'Gedächtnisfehler'.[2] He is evidently unaware that such variations are typical of Empedocles' repeated verses, and that Plutarch's reading as well as that of Simplicius may be reflected in Lucretius (see pp. 153–4). Hölscher shows no recognition of Plutarch's special authority on Empedocles (see pp. 32–6 above). He writes simply, 'Plutarch hat offenbar die Farben für sein Bild vorkosmischer Feindschaft, nicht allzu kritisch, aus seiner literarischen Erinnerung genommen'.[3]

[1] (1965), pp. 20 ff. [2] (1965), p. 21 n. 1. [3] (1965), p. 21.

4. The difference between two worlds is preserved in Aetius 2. 4. 8 (DK 31 A 52): Ἐμπεδοκλῆς τὸν κόσμον ⟨γίνεσθαι καὶ add. Sturz, p. 224⟩ φθείρεσθαι κατὰ τὴν ἀντεπικράτειαν τοῦ νείκους καὶ τῆς φιλίας. According to Hölscher this means that the world is born through Love and perishes through Strife.[1] Particularly with Sturz's emendation, which Hölscher accepts, the lines are more likely to be a paraphrase of fr. 17. 3–5 and mean that the world *both* is born *and* dies through *both* Love *and* Strife.

Elsewhere in the doxographical tradition, in the account of the zoogony, the consequences of alternate worlds of increasing Love and increasing Strife have, not surprisingly, been lost sight of.[2]

OTHER CRITICISMS

We turn now to consider briefly some other more general criticisms by Hölscher, and then to review Solmsen's arguments.

HÖLSCHER

Hölscher prefaces his article with a set of more general objections which may be briefly answered.

Hölscher argues, pp. 7–8, that cosmogony is in general the result of a separation of the elements, while a zoogony is the result of a mixture of the elements. But, Hölscher's argument continues, under increasing Strife this cannot be so. There must be first a cosmogony and then, as the power of separation is increasing, a zoogony. Conversely, under increasing Love the cosmogonic separation of the world masses will have to be the result of an increasing mixture of the elements, and when the process of mixture is completed it will have destroyed the world formation which it had earlier brought into being.

These objections are a mixture of fantasy and fact.

It is *fantasy* that zoogony is always the result of an increasing unification of the elements. The zoogony of increasing Strife is,

[1] (1965), p. 18.

[2] See p. 231 below. For the circumstances of Simplicius' denial of the existence of a condition of 'total Strife' see pp. 28–9 and 99–101 above and p. 262 below.

as it has to be in terms of the cycle, a zoogony of increasing separation. Whole-natured forms are produced by fire that is κρινόμενον and 'longing to reach its like'. As we shall see, these whole-natured creatures are then split into men and women, and later men and women will evidently be subject still further to the ravages of increasing separation (see pp. 203–9, 209–10 and 218–29 below).

It is *fact* that conversely a cosmogony can easily be effected only by a process of increasing separation. This is why, as Aristotle tells us in the passage of the *De caelo* which we have already discussed (pp. 175–7), Empedocles failed to describe in any detail the formation of the cosmic masses under increasing Love.

There is no difficulty in this practical imbalance in the cycle from the historical point of view. Empedocles' motives for introducing the whole idea of cyclic alternation (cf. pp. 242–4 below) will have been sufficiently powerful to outweigh the minor practical inconvenience that a cosmogony can be described only once, under increasing Strife, and has to be taken for granted by the listener for the period of increasing Love. In something like the same way Empedocles has overlooked, for the sake of his larger and more important principles, what to Aristotle appears as an inconsistency, namely that the separation of several elements has to lead to the unification of each of them, and therefore that his cause of separation, Strife, is incidentally a cause of union, while *mutatis mutandis* Love is cause of separation (cf. pp. 311–12 below).

Hölscher's remark that unification, if brought to completion, would destroy the world order that (if there had been a cosmogony of increasing Love) it would earlier have created is again *fact*. The whole point of the cosmic cycle, as we are told in fr. 17, is precisely that the world such as we know it, the world of 'mortal things', is brought to birth *and* destroyed *both* by increasing unification *and* by increasing separation.

Hölscher's other general arguments, e.g. p. 18 that periodic destructions of the one and the many are inconsistent with the endless existence of Love and Strife affirmed in fr. 16 and the impossibility of total extinction affirmed in fr. 12, hardly require

refutation. This argument is in fact taken from Karsten.[1] It is sufficiently well answered by Aristotle's remark that Empedocles' world does not come into being and pass away in the strict sense (which is what frr. 12 and 16 deny), but changes only in its διαθέσεις.[2]

SOLMSEN

The burden of the major part of Solmsen's argument is that the activity of Love described in fr. 35 belongs to the present world. This seems to be founded on three loosely related arguments.

1. First, fr. 71 describes the formation of

τόσσ' ὅσα νῦν γεγάασι συναρμοσθέντ' Ἀφροδίτηι.[3]

Fr. 71 is placed by Simplicius in the same context as fr. 35, *De caelo* 528–30. Since fr. 71 describes the formation of things νῦν, then fr. 35 must likewise describe the formation of things in the present world.[4]

2. Secondly, and more broadly, Solmsen argues that according to Simplicius fr. 35 preceded fr. 98 (*Phys.* 32. 11); that fr. 96 is closely associated in content with fr. 98 and with other descriptions of Love's formation of animal parts; and hence that fr. 35 probably introduced the descriptions of Love's formation of bone and flesh and probably too of eyes, sinews and the like.[5] This conclusion appears to Solmsen to exclude the possibility of a double zoogony. He writes, p. 117: 'The living beings whose origin this fragment (*sc.* fr. 35) describes are just as much the product of mixture as the living beings and their "forms" explained in the other fragments. If B 35 were to be related to another phase of the cycle, Cypris would play an identical role in opposite phases, a result which can hardly be welcome

[1] Pp. 383–4.
[2] *De caelo* 280a 11–24, quoted above, p. 171.
[3] The verse is quoted in Solmsen's form. The reading τόσσ' ὅσα is considered below, p. 184 n. 3.
[4] This argument is elaborated primarily on pp. 112–13 of Solmsen's article, as cited above, p. 160 n. 5.
[5] Pp. 113 ff. of Solmsen's article.

to scholars favouring a dual cosmogony and zoogony.' Again, Solmsen writes, p. 118: 'As far as I am aware, no recent interpreter of Empedocles has come forward with a flat statement that the flesh, the bones, the eyes etc. whose creation we find set forth in the fragments are not the flesh, the bones, etc. of living beings now in existence. Common sense would be outraged by this idea.'

3. Finally, Solmsen argues that Simplicius' distinction between the sensible and the intelligible world leaves no room for a sensible world under the increasing influence of Love. He writes, p. 121: 'One would be hard pressed to find between the νοητὸς κόσμος of Love and the αἰσθητὸς κόσμος of Strife a place for another αἰσθητὸς κόσμος of Love.' Again therefore fr. 35 must describe the present world, what Solmsen calls the αἰσθητὸς κόσμος of Strife.

The radical misconception in these arguments seems to be largely a theoretical one: that Love would have no part to play in a world of increasing Strife. However, it is on *a priori* grounds entirely possible that Love should be responsible for the proportions of flesh, for example, *both* under increasing Love *and* under increasing Strife. For at any point in the one world Love and Strife will be matched in the same proportion as they are at a corresponding point in the other world; and we may therefore expect similar phenomena to result. There is thus no need, if Empedocles' world is viewed extrinsically, for there to be different *contents* in either world. What will be different in either world is the *direction* of change.

Solmsen has evidently not allowed for this conception of the cycle. He writes, p. 122:

> And let us make no mistake: if living beings, no matter by whom fashioned, are to arise in a period of increasing Strife, Strife must have done a good part of its work beforehand. For such beings need earth and sea to exist, both of which arise late in the separation of the *maxima membra mundi*. Love, whom one would suppose at that point to be reduced to a last ditch defensive position (if not completely 'gone out'), would have to have an astonishing degree of initiative and aggressiveness to produce something τέλειον.

The initial fault here lies in the ambiguity of 'late'. Earth and sea

were formed 'later' than the separation of fire and air or aether.[1] But there is no need to suppose that earth and sea were formed so 'late' in a world of increasing Strife that no time was left for a zoogony; nor therefore that the separation of elements in Strife's cosmogony was carried to such extremes that after the cosmogony the mixture of elements to form such things as flesh and bone would be no longer possible.[2] It is thus an entirely unnecessary, and unwarranted, assumption that Love would be powerless for most of the period of increasing Strife. On the contrary, fr. 35 describes a time of increasing Love, and Strife is still active, holding the elements 'aloft', i.e. separate, and moving outwards οὐ . . . ἀμεμφέως, line 9. Similarly, when Strife is increasing, we may suppose that there would still be room for Love's activity.

It follows therefore that, on general grounds, there is no reason why we should not 'welcome' the notion that Love plays 'an identical role in opposite phases', provided of course that we allow for a difference in the *direction* of change. Similarly, there is no reason why we should be 'outraged' at the notion that Love fashions bones and flesh in a world other than our own, but that they have the same proportions as the bones and flesh of which we are composed now, which will be equally the result of Love's 'harmony', provided again that we allow for the difference that bones and flesh now are part of a cosmic process which is characterized by increasing separation and not by increasing unity. Two worlds, the one of Strife increasing and the other of Love increasing, will affect not the composition of flesh and bone, but the fate, as it were, that lies ahead of flesh and bone. As we are told in fr. 20, mortal limbs at one time are brought together by Love to be one only, and at another time are torn apart by wicked spirits of dissension. They are the *same kind* of limbs. The *process* of which they form a part is different.[3]

Once these general principles have been reasserted, there is very

[1] Solmsen refers to Philo, *De prov.* 2, pp. 86–7 Aucher (DK 31 A 49). For the present reconstruction of this and other accounts of the separation of elements in Strife's cosmogony, see note 7, pp. 287–300 below.

[2] Incidentally, we do in fact know that trees were formed from the earth *before* the sun was working, and before day and night were distinguished, Aet. 5. 26. 4 (DK 31 A 70).

[3] The present interpretation of fr. 20 is discussed below, pp. 218–27, as part of the evidence for two zoogonies.

little of substance to be extracted from Solmsen's arguments. It is entirely possible for Empedocles to speak, in fr. 71, of 'as many things as have come to be now, fashioned by Aphrodite', without implying by these words that the bones and flesh we know now are part of the zoogonical sequence initiated by Love. For Love's zoogonical activity need have been described only once.[1] None the less, Love would still in principle be responsible for the composition of flesh, for example, whenever it appeared, whether under increasing Love or under increasing Strife.

Taken more narrowly, it is possible that fr. 71 formed part of the transition from the more general principles of fr. 21 to fr. 35 and thence to the more detailed description of Love's zoogony, although this need not follow from Simplicius' citation.[2] Even so, it would be entirely possible that Empedocles should promise to describe Love's formation, in her own zoogony, of 'as many things as there are now', without necessarily implying that the things that there are now were part of the zoogonical sequence that Love was about to initiate.[3]

Solmsen's use of Simplicius is entirely inconclusive. In general Simplicius is primarily concerned with a simple contrast between the sensible and the intelligible world.[4] When he quotes fr. 35, he is engaged on the dispute with Alexander and others, as to whether Strife is in sole control of the sensible world.[5] It is natural that, in

[1] Cf. p. 230 below.

[2] *De caelo* 529. 28–9.

[3] Simplicius' manuscripts A and F have τοῖα (*sic*) ὅσα, *De caelo* 530. 4. This has been emended by Karsten to τόσσ' ὅσα and by Wilamowitz, *ap.* DK, to τοῖ' οἷα (for the scansion see L.S.J., *s.v.*). I am inclined to retain the anomaly in the manuscripts, τοῖ' ὅσα, 'those kind of things, as many as now...'. As a partial parallel, Hesiod writes, *Theog.* 700–5, αὖτως, ὡς ὅτε...τοῖος...τόσσος...Admittedly, this is a slightly tangled passage: the second comparison, τόσσος..., is a line taken from Homer and is strictly superfluous.

If the reading of the manuscripts is retained, it could then perhaps be argued that the combination of τοῖα and ὅσα gives emphasis to the element of comparison, rather than of direct identification, between the τοῖα formed from the elements and the ὅσα that there are now. But there is no need in the present context to exploit so delicate a consideration.

It should be clear that in the paragraph in the text I am writing *argumenti causa*, and reserve judgment on whether fr. 71 does in fact form part of the transition to Love's zoogony.

[4] See above, pp. 28–9.

[5] *Phys.* 31. 18–34. 12; *De caelo* 528. 29–530. 11. For this dispute see above, pp. 100–1.

trying to demonstrate Love's part in the sensible world, Simplicius should have recourse to those parts of the poem which describe Love at work in her zoogony.

This behaviour does not mean that we have to look for *another* αἰσθητὸς κόσμος of Love *apart from* the αἰσθητὸς κόσμος of Strife, as Solmsen wishes. It is perfectly possible for Simplicius to say, as he does elsewhere, that Strife makes the sensible world from the Sphere,[1] or that Strife is the efficient cause of the sensible world.[2] This does not preclude Simplicius' choice of fragments from the zoogony of increasing Love. Both worlds or either world are in Simplicius' mind to be distinguished from the Sphere, which he sees as the intelligible realm. For in the sensible world Love and Strife, according to Simplicius, are permanently at war. 'Total Strife', according to Simplicius, is a mere mythical contrivance. Hence the αἰσθητὸς κόσμος of Love, as the equivalent of what we should call increasing Love, is for Simplicius the same as the αἰσθητὸς κόσμος of Strife, what we should call increasing Strife. Both together make up the sensible world as opposed to the intelligible world of the Sphere.[3]

Some of Solmsen's further arguments in support of his thesis may perhaps be treated more briefly.

1. Thus Solmsen comments as follows on Aristotle's description of monsters as ἐν ταῖς ἐξ ἀρχῆς ἅρα συστάσεσι: 'This can hardly be the normal Greek for a reference to the later stage of developments in another – and later! – world.'[4] (For the interpretation of Aristotle's phrase in the present reconstruction, see below, p. 202.)

Solmsen ignores the fact that increasing Love was regularly thought of as in the *past*; and in particular that Love's zoogony, with monsters, was apparently described in book one, and therefore

[1] E.g. *De caelo* 293. 20–3, quoted by Solmsen, p. 121 n. 30.

[2] E.g. *Phys.* 1123. 25–1124. 18, quoted in part by Solmsen, p. 120 n. 29.

[3] References to Simplicius' views have been given above, pp. 28–9 and 99–101. The denial of the existence of total Strife, except as part of Empedocles' mythical approach, is to be found in the passage of the *De caelo* which has been chiefly under discussion, especially 528. 29–32 and 530. 22–6. The dispute with Alexander on this occasion centres on Aristotle's criticism of the *dine*, a subject which has been treated separately in note 2, pp. 262–5 below.

[4] Solmsen, p. 124; Arist. *Phys.* 199b5.

before the description of whole-natured creatures in the present world, which came in book two.[1]

2. Solmsen's next sentence runs, p. 124: 'Just as no ancient author speaks of a cosmogony ἐπὶ or ὑπὸ Φιλίας, so none knows anything about a *zoogony* ἐπὶ Νείκους.' This compounds two errors.

(i) Aristotle, we have seen, says that Empedocles failed to describe the formation of the heavens under increasing Love, τὴν ἐπὶ τῆς φιλότητος (*sc.* τοῦ οὐρανοῦ γένεσιν). But this does not mean that there was *no* cosmos. The point of Aristotle's remark, we have suggested, is that there *was* a cosmos, but that Empedocles failed to describe its *genesis*.[2] In the light of Aristotle's statement it is entirely fallacious of Solmsen to conclude, p. 136: 'Two ζῳογονίαι, one of which is the reverse of the other, presuppose two κοσμογονίαι, but of a second cosmogony there is *nec vola nec vestigium*.' Two zoogonies presuppose two *cosmoi*. But two cosmoi did not in fact produce two *cosmogonies*. For what Aristotle tells us in effect is that Empedocles omitted the detailed description of a second cosmogony.

There is the same confusion between cosmos and cosmogony in Solmsen's initial assumption that 'there seems to be a glaring contradiction' between Aristotle's two statements, that Empedocles failed to describe the origin of the heavens under increasing Love, and that τὸν κόσμον ὁμοίως ἔχειν φησὶν ἐπί τε τοῦ νείκους νῦν καὶ πρότερον ἐπὶ τῆς φιλίας.[3]

In both passages Aristotle supposes that there was a cosmos ἐπὶ τῆς φιλότητος or φιλίας. In the former passage he says that Empedocles failed to describe its origin. There is no contradiction. On

[1] For the general placing of increasing Love in the past see pp. 174–5 above; and for the application to the two zoogonies see pp. 204–5 below. Solmsen notes the relative ordering of the fragments in question on p. 114, but not their relevance to his present argument.

A similar assumption on the relative chronology of the two worlds seems to underlie Solmsen's argument, pp. 126–7 and 129, that Empedocles began his cosmological account with the Sphere, and hence that any description of the transition from increasing unity to the full unity of the Sphere would have lain in the future.

[2] Arist. *De caelo* 301a15–16, quoted in its context on p. 10 above, and discussed in this connection pp. 175–7 above.

[3] Solmsen, p. 130. Arist. *De gen. et corr.* 334a5–9, quoted and discussed above, pp. 172–5.

the following page Solmsen appears to see this. But he goes on to argue that the world that is 'like' ours would be the Sphere, a view we have already considered (pp. 173–4 above). Significantly, Solmsen remarks when he first introduces this interpretation: 'One... hesitates to charge Aristotle with so flagrant a misreading of Empedocles' doctrines.'[1]

(ii) Solmsen's second error, in the main sentence quoted above, is to say that there was no zoogony in a world of increasing Strife. To support this contention Solmsen has to skirt around the fairly obvious evidence that whole-natured creatures were formed in a different world from the world of Love's zoogony, and that they were subject to increasing separation in that they were subsequently split apart into men and women.[2]

In this case Solmsen's root misconception seems to be that a 'separation' of the οὐλοφυῆ would involve a reduction to the four elements. He writes, p. 135 n. 73: 'If in flesh and blood all elements are mixed (B96) living beings cannot develop through a separation of these elements.' But this is a quite unnecessary interpretation. An increase of Love's activity is manifested by the union of separate limbs to form monsters.[3] We shall argue that fr. 20 describes how, as the result of an increase of Strife's activity, men and women will be torn apart again into separate limbs.[4] The separation of the οὐλοφυῆ can have been thought of in a similar fashion: the division of bisexual or asexual creatures into males and females; not as a complete reduction to the elements.[5]

In his consideration of a possible separation of the οὐλοφυῆ, Solmsen also makes the mistake of associating sexual activity too exclusively with Aphrodite, and so supposing that the separation of whole-natured creatures into men and women, and subsequent γένεσις δι' ἀλλήλων, would not be likely to come in a world of increasing Strife, although he has some reservations 'because definitive evidence is lacking', p. 135. He does not remark upon

[1] P. 131.
[2] Solmsen's account of the οὐλοφυῆ is on pp. 133–6. The present account is given on pp. 203–9 below.
[3] The evidence is discussed on pp. 209–10 below.
[4] Pp. 218 ff. below.
[5] For the sexual character of the whole-natured creatures see pp. 205–7 below.

the explicit association of marriage with Strife by Hippolytus and by clear implication in Plutarch.[1]

3. On the subject of total Strife Solmsen again offers a combination of factual error and faulty inference. He writes that '. . . of this appalling catastrophe (*sc.* the destruction of this present world by Strife) no fragment, no testimony, not even any of the later writers interested in science fiction transmits a sound'.[2]

In writing this, Solmsen appears to ignore the excellent testimony of Plutarch, a later writer perhaps, but someone who knew Empedocles well, and who describes precisely the non-cosmic state which will result from the increasing separation of the elements in the present world.[3]

Solmsen refers to the passage from Plutarch when he discusses the verses which Plutarch has included in his description, and which we have already discussed.[4] Solmsen rightly distinguishes Plutarch's quotation from that of Simplicius and Eudemus. But he appears to think that Plutarch's verses described the present world; whereas from their content, and from the context in which they are quoted by Plutarch, it is clear that they are intended to describe a non-cosmic state.

Again, Solmsen's root misconception seems to be a theoretical one. Solmsen has evidently been misled by his notion of what a total separation of the elements by Strife would involve. He writes:

> If Strife were to attain the maximum of its influence only after building the Cosmos this could only mean that the layers of the elements become in the end completely separated from one another—so completely that they do not even touch. . . An acute friend has pertinently asked what would be in the space between the elements if they do not touch. The answer (*o pudor*!) is—void; but τοῦ παντὸς δ' οὐδὲν κενεόν.[5]

Solmsen's account rests on too Aristotelian a notion of separation. Fire, for example, in Empedocles' system is separated, when it is

[1] See pp. 209–10 below. Cf. also pp. 205–6 below.
[2] P. 137. It should perhaps be noted that Solmsen's remarks are printed in parentheses.
[3] *De facie* 926D–927A, quoted above, pp. 31–2, and discussed pp. 31–6, 147ff., and 178. For the general value of Plutarch's evidence on Empedocles see especially pp. 32–6 above.
[4] Solmsen, p. 132. Plutarch's quotation is discussed above, pp. 149–54.
[5] Pp. 118–19. The exclamation *o pudor* is from Solmsen.

isolated into a single body, εἰς ἓν συγκρίνεται.[1] When each element has been isolated, they are arranged, so we have argued, in concentric spheres (pp. 147–9). Empedocles need not have troubled himself with the consideration that if the concentric spheres of the elements touch, they are not fully 'separated', and if they do not touch, they must be 'separated' by void.

Solmsen's further misconception on this point seems to be that the present condition of the elements in fact represents Empedocles' notion of total separation. He writes, p. 118: '...when Strife has built the Cosmos, having separated the elements into four homogeneous masses, it has reached the peak of its power.' But the elements in the present cosmos are not fully separated. There are, for example, fires now burning beneath the earth.[2] Indeed all the present variegation of phenomena is due to a mixing of the elements, as we are told so vividly in frr. 20 and 23. For the elements now are only partially separated. As Plutarch is acutely aware in the *De facie*, in the passage already cited, the Stoic and Aristotelian theory of the elements would, *if taken to extremes*, lead to a non-cosmic state; and the equivalent in Empedocles of this non-cosmic state, with each element reduced to its 'natural' place, is not the present world, but the world under the total domination of Strife, before the return of Love.

We may perhaps be forgiven for not pursuing various other additional points which Solmsen offers as evidence for, or as illustrations of, his thesis. All the passages of any substance adduced by Solmsen are dealt with elsewhere in the present work. Those who are inclined should have no trouble in tracing the further correlations between Solmsen's thesis and the present interpretation.

TWO ZOOGONIES

The chief evidence for there being two zoogonical sequences is given below, as part of a detailed examination of the order of stages in the zoogony. But there is, as a preliminary piece of

[1] Arist. *Met.* 985a26, quoted more fully and discussed above, pp. 147 ff.

[2] Fr. 52. The application of subterranean fire in explaining phenomena of the present world may be found in passages from Plutarch, *De primo frig.* 953E (DK 31A69), [Arist.] *Probl.* 937a11–16 (DK *ibid.*), and Seneca, *Quaest. nat.* 3. 24. 1–3 (DK 31A68).

evidence, one group of passages which is more conveniently treated here. Their subject is the distribution of animals among the elements. There is an apparent contradiction in the sources. According to Aristotle[1] and Theophrastus,[2] fiery animals such as fish take up their habitat in a cool element, water. But according to Aetius, the animals were distributed throughout the universe on the principle of like to like. Therefore birds, which are fiery creatures, fly up into the air (adopting Diels' conjecture ἀναπτῆναι for ἀναπνεῖν).[3]

How do we explain this contradiction? Freeman writes simply that 'an exception (*sc.* to the attraction of like by like) occurs in the case of some aquatic animals'.[4] Bignone has a more sophisticated explanation.[5] He tries to accommodate Aristotle and Theophrastus to Aetius by way of another report in Aetius, to the effect that desire for nourishment is due to the desire of like for like.[6] Fish therefore, Bignone explains, are driven to water to make up for their own deficiency of that element and so in fact are impelled by the desire of like for like in the same way as Aetius' birds. But this does not solve the conflict. If fish are to be impelled by the desire of the smaller element, then why should not birds also be impelled by the desire of the smaller element?

A simpler and more convincing explanation is that what Aristotle and Theophrastus say is true of Love's world, where unlike elements have to be mixed, while what Aetius says is true of Strife's world, where like joins like.

1. It is in fact fairly clear that the reports of Aristotle and Theophrastus do in fact belong to Love's world. Aristotle writes, *De resp.* 477b5–9:

> ὅλως μὲν οὖν ἄτοπον πῶς ἐνδέχεται γενόμενον ἕκαστον αὐτῶν (*sc.* Empedocles' fiery fish) ἐν τῶι ξηρῶι μεταβάλλειν τὸν τόπον εἰς τὸ ὑγρόν· σχεδὸν γὰρ καὶ ἄποδα τὰ πλεῖστα αὐτῶν ἐστίν. ὁ δὲ (*sc.* Empedocles) τὴν ἐξ ἀρχῆς αὐτῶν σύστασιν λέγων γενέσθαι μὲν ἐν τῶι ξηρῶι φησί, φεύγοντα δ' ἐλθεῖν εἰς τὸ ὑγρόν.

[1] *De resp.* 477a32–478a10 (cf. DK 31A73). Cf. *De part. anim.* 648a23–31 (DK 28A52); *De gen. anim.* 718b32–6.

[2] *De caus. pl.* 1. 21. 5 and 22. 2–3 (cf. DK 31A73).

[3] 5. 19. 5 (DK 31A72). Diels, *Dox.*, *ad loc.*

[4] (1946), p. 192. Longrigg repeats this in effect, 'Empedocles's fiery fish', *Journal of the Warburg and Courtauld Institutes*, 28 (1965), 314–15.

[5] Pp. 357 n. 3 and 526 n. 1.

[6] 4. 9. 14 and 15, and 5. 28 (DK 31A95).

Plutarch quotes a line which evidently describes the transition of fish from dry land to sea,

φῦλον ἄμουσον ἄγουσα πολυσπερέων καμασήνων.[1]

The context in Plutarch suggests that the female subject of ἄγουσα is Aphrodite. This is confirmed by the parallel account in Theophrastus, *De caus. pl.* 1. 22. 2:

οὐ γὰρ οὔτε γεννᾶν οὔτε εὖ τρέφειν οὔτε σώιζειν πέφυκε τὸ ἐναντίον, ἀλλὰ τὸ ὅμοιον, ἐπεὶ καὶ Ἐμπεδοκλεῖ πρὸς τοῖς ἄλλοις καὶ τοῦτ' ἄτοπον, ὅπερ καὶ ἐν ἑτέροις εἴρηται, τὸ γεννήσασαν ἐν τῶι ξηρῶι τὴν φύσιν μεταίρειν εἰς τὸ ὑγρόν.

Here γεννήσασαν cannot be passive in meaning, as Dengler supposes.[2] Most probably, φύσις represents Love and γεννήσασαν will refer to Love's zoogonical activity at the time of her increasing power (see pp. 200–3 below).

Theophrastus' account continues, 1. 22. 2–3:

πῶς γὰρ ἂν διέμενεν ἢ πῶς οἷόν τε καὶ διαμένειν ὀντιναοῦν χρόνον, εἴπερ ἦν ὅμοια τοῖς νῦν; ἔτι δ' αὐτὸ τὸ συμβαῖνον κατὰ τὴν νῦν γέννησιν ἀποσημαίνει.

The query whether Empedocles' fish were 'like those now' and the assertion that what happens in the present world discredits Empedocles' theory again imply that the fish in question belonged to a world other than the present world. This could possibly mean simply a period earlier in the formation of the present world. But ὅμοια τοῖς νῦν and κατὰ τὴν νῦν γέννησιν seem to indicate a stronger contrast. Probably the implication is that the fish belonged to the world of increasing Love. Elsewhere Theophrastus again hits on the difference between the world of increasing Love and the present world as a source of inconsistency, *De sens.* 20 (cf. p. 178 above). Aristotle has probably done the same in his criticism of the workings of the *dine* (see pp. 262–5 below).

Just as in the *De causis plantarum* Theophrastus contrasts

[1] Fr. 74, quoted *Quaest. conv.* 685 F.

[2] *Theophrastus: De causis plantarum, book one, text, critical apparatus, translation, and commentary* (printed dissertation, Philadelphia, 1927), *ad loc.*

Empedocles' fish with the world νῦν, so in the passage cited from the *De sensibus* he speaks of increasing Love as existing τότε. In the *De causis plantarum*, as in the *De sensibus*, the temporal contrast most likely reflects the distinction between Love's world, which was thought of as in the past, and our own (cf. pp. 174–5 above). Similarly, Aristotle writes of monsters from Love's world compared with monsters now with the two tenses, ἀπώλετο καὶ ἀπόλλυται (see pp. 216–17 below).

2. What is more difficult is to know whether we can trust Aetius. For the distribution of animals among the elements on the principle of like to like is found in a number of places from Aristotle onwards.[1] Very widespread is the similar idea that there are classes of animals corresponding to the elements. The difference is that in these passages it is not stated, though it is probably often implied, that each animal is made out of the element to which it belongs.[2]

The opposite view, that animals are distributed among the elements according to the attraction of opposites, the theory

[1] Aristotle, *De resp.* 477a27–31, *De gen. anim.* 761b8–23. (For the fire animals see *Hist. anim.* 552b9–17, and for a different view limiting animals to two elements, *Meteor.* 382a6–8.) The Diodorus cosmogony and its counterparts: Diodorus 1. 7. 4–5; Hermippus, *De astrol.* 1. 64–8 and 2. 11–13; Tzetzes, *Schol. in Hesiod.* vol. 3, p. 58 Gaisford, and *Exeg. in Il.* 56. 14–21 Hermann. These passages are obviously derived from a common source, and have traits that may be derived from Empedocles, see pp. 215, 272–3, 294–6 below. The *Epinomis* 981B–985E. Apuleius, *De Platone* 1. 11.

[2] Plato, *Timaeus* 39E–40A. Philodemus, *De diis* liber 3 ed. Diels (Berlin, 1916), p. 26 col. 8. 17–22. Cicero, *De nat. deorum* 1. 103 and 2. 42. Perhaps Virgil, *Aeneid* 6. 728–9. Ovid, *Met.* 1. 72–5. Philo in several places: *De aet. mundi* 45–6, Cohn–Wendland 6; *Quod deterius potiori insidiari soleat* 151–4, C–W 1; *De gigantibus* 7–11, C–W 2; *De opif. mundi* 62–6 and 84, C–W 1; *De plant.* 12, C–W 2; *De somniis* 1. 135, C–W 3. The *Corpus Hermeticum* excerptum 24 (= Stobaeus, *Ecl.* 1. 49. 45 *sub finem*) 16–18, pp. 504. 20–506. 15 Scott, and libellus 12. 20, pp. 234. 28–236. 3 Scott. Apuleius, *De deo Socratis* 7–13. Iamblichus, *De myst.* 1. 8 *ad init.* Sextus, *Adv. math.* 9. 86–7. Achilles, *Isag.* 5, p. 35. 10–11 Maass. In a muted form, Hippol. *Ref.* 10. 33. 5–6. Plotinus, 6. 7. 12. Porphyry. *De abst.* 3. 14. Augustine in several places: writing on Varro, *De civ. dei* 7. 6; on 'quosdam philosophos', *De Genesi ad litteram* 3. 9; and on Manichaeus, *De haeresibus ad Quodvultdeum* 46 *ad init.*, and *Contra epistolam Manichaei quam vocant fundamenti* 28–32. Chalcidius, *in Timaeum* 119–20. [Galen], referring to Plato and Aristotle, *Historia philosopha* 35, vol. 19, p. 336 Kühn = Diels, *Dox.* p. 645, sect. 124. Isidore, *Etymol.* 13. 3. 3.

attributed to Empedocles by Aristotle and Theophrastus, is found hardly at all elsewhere.[1]

Can we be sure therefore that the like-to-like theory in Aetius will not have ousted the formula, otherwise scarcely known, that animals were distributed among the elements according to the attraction of opposites?

That Aetius is wrong is the conclusion of Pfligersdorffer.[2] But Pfligersdorffer is influenced by Zeller's view, noted above (pp. 158–60), that mortal creatures were born only under increasing Love, and that with Strife's cosmogony Empedocles 'nicht Ernst gemacht hat'.[3]

There were, as we shall argue independently in the next chapter, two worlds of mortal creatures. But the balance would still perhaps be against Aetius, were it not that the distribution of animals according to the attraction of likes has a close parallel in Empedocles' theory of the growth of plant life. Earth forces the roots of plants downwards, while internal fire or aether

[1] Menestor of Sybaris is said by Theophrastus to have followed Empedocles' theory and applied it to plants, *De caus. pl.* 1. 21. 6, cf. *Hist. pl.* 5. 9. 6.

In Athenaeus, 8. 353E–F, there is the statement: τῶν δ' ἰχθύων [lacunam notavit Kaibel] τὰ μὲν εἶναι χερσαῖα, τὰ δὲ ἔνυδρα, τὰ δὲ πυριγενῆ. Probably this contained nothing more than the regular idea of the distribution of animals among the elements on the principle of like to like: it is unlikely that there would be a third kind of fish, that lived on land.

There is the unusual theory in Vitruvius, *De architectura* 1. 4. 7, to the effect that birds have a preponderance of air enabling them to fly upwards, while fish and land animals have a small quantity only of water and earth respectively and are thus enabled to persevere each in their natural habitat. The description of fish is as follows: *aquatiles autem piscium naturae, quod temperatae sunt a calido plurimumque ex aeris et terreni ⟨principiis* add. Krohn⟩ *sunt compositae, sed umoris habent oppido quam paulum, quo minus habent e principiis umoris in corpore, facilius in umore perdurant.* Vitruvius' whole account looks like an attempt to combine in a single cosmogony Empedocles' theories of birds under increasing Strife (the attraction of likes) and of fish under increasing Love (the attraction of opposites). At the same time Vitruvius avoids Empedocles' paradox of giving fish a preponderance of fire over any other element. For Empedocles' influence on Vitruvius in general see Pellati, 'La dottrina degli elementi nella fisica di Vitruvio', *Rinascimento*, 2 (1951), 241–59. Pellati, p. 258, mentions the present passage, but without appreciating the significance of Empedocles' two zoogonies.

[2] (1959), pp. 123–4.

[3] Pfligersdorffer (1959), pp. 107–8.

sends their stalks and branches shooting up to heaven.[1] Similarly, whole-natured creatures arise from the earth through the separative upward action of fire.[2] All this is very near to Aetius' idea that birds fly up into the air because they are full of fire.

It seems quite likely therefore that Aetius is to be trusted here. In that case our apparently conflicting reports will be a genuine relic of the two zoogonical sequences. In Love's world animals were stationed among the elements according to the attraction of opposites, and in Strife's world according to the principle of like to like.[3]

AETIUS' ALL-ELEMENT ANIMAL

Aetius' report concludes with the phrase: τὰ δ' ἰσόμοιρα τῇι κράσει πᾶσι τοῖς θώραξι πεφωνηκέναι.[4] Whatever precise reconstruction we adopt of this phrase, the meaning is evidently that some animals are at home among all the elements.[5]

This notion, or something similar, is to be found in several of the passages quoted above (p. 192) which assign groups of animals to the elements.[6] This creature is either nameless, or man

[1] Arist. *De anima* 415b28–416a2 (DK 31A70). Theophrastus, *De caus. pl.* 1. 12. 5 (DK 31A70). Cf. Aetius 5. 26. 4 (DK 31A70), and 5. 27. 1 (DK 31A77).

[2] Fr. 62. 2.

[3] There are two complications in this reconstruction that are best reserved for separate treatment. The first is that certain of Aristotle's criticisms have been interpreted in a way that would make Aristotle deny to Empedocles the use of the principle of like to like. The second complication is that throughout this discussion we have spoken for convenience of 'the attraction of likes' and 'the attraction of opposites' in the conventional sense: that is, of the attraction of fire for fire as an example of the first, and of the attraction of fire for water as an example of the second law. In fact Empedocles appears to have envisaged the attraction of opposites, the attraction of fire for water, as in effect an example of the attraction of like for like, in that in order to unite opposite elements Love 'makes them alike'. The evidence on both points is discussed in note 8, pp. 301–13 below.

[4] 5. 19. 5 (DK 31A 72).

[5] The latest, and the most implausible, reconstruction is that offered by Cataudella, 'Empedoclea', *R.F.I.C.* n.s. 38 (1960), 126–7.

[6] Perhaps in Ovid, in the continuation of the passage cited above. Twice in Philo, although the second passage is concerned to deny the existence of such an animal, *De opif. mundi* 145–7, and *Quod deterius potiori insidiari soleat* 154. In the two passages cited above from the *Corpus Hermeticum*, from the first of which, excerptum 24, it is (wrongly) expunged by Scott

or soul or god. Probably the creatures intended by Aetius or his source are of the same kind, namely the *daimones* of the *Katharmoi*, fr. 115.[1] For these *daimones* are tossed from element to element. It is true that the point in Empedocles is that the fallen *daimon* is not at home in any element. He is spewn out from sea to land and from land to sun. But in a doxographical compilation of the quality of Aetius it would be not too difficult a step from this to the idea of a creature at home in all the elements, if that is in fact the implication of Aetius' concluding remark.

This is not to say that the idea of a *daimon* who is at home in all the elements is a genuine feature of Empedocles' zoogony. Its appearance in Aetius would be sufficiently explained by the example of the *Katharmoi*, by a natural process of extension from the idea of a class of creatures for each element to a class of creatures common to all the elements, and by the influence of the passages we have cited (p. 194 n. 6), which of course are later than Aetius, but may well point to an earlier tradition.

as contradicting the sense of the piece. Briefly in Iamblichus, who introduces it as a correction of his earlier statement, *De myst.* 1. 9, a correction of 1. 8 *ad init.* Sextus, *Adv. math.* 9. 87. Incidentally in Augustine, in the *Contra epistolam Manichaei* etc., cited above. Chalcidius. Tzetzes, *Exeg. in Iliad.*

[1] It is argued below that the *daimones* are fragmentations of Love, note 10, pp. 325–36.

CHAPTER 9

THE ZOOGONICAL STAGES

INTRODUCTION

The last feature of Empedocles' cosmic cycle which we have to consider is the development of animal life. Particular biological theories, breathing, sense perception and the like, must be left for other occasions. But the sequence of zoogonical stages was a manifestation of the cosmic cycle, and for that reason it is treated here.

Aetius 5. 19. 5 (DK 31 A72) records four stages in the development of animal life, and these can be confirmed singly from the fragments:

1. separate limbs, fr. 57;
2. monsters, frr. 60 and 61;
3. τὰ ὁλοφυῆ, fr. 62;
4. men and women.

The problem is to know how these stages were fitted into the life of the world.

1. Several ways have been suggested of fitting these stages into a single cosmogony.

Zeller began by thinking that οὐλοφυῆ were on the same level, as it were, with separate limbs and monsters. They were primitive lumps of water and earth (reading οὔδεος in fr. 62. 5), but specifically human in that they produced men and women only.[1] Thus we have the scheme:

Human	Non-human
1. οὐλοφυῆ.	1. separate limbs and monsters.
2. men and women.	2. animals as they are now.

Later Zeller held that there were οὐλοφυῆ for living creatures of every kind, and that they arose after the race of monsters.[2] Thus we have in effect the order of Aetius.

[1] *Die Philosophie der Griechen*, 2nd edn, Theil 1 (1856), pp. 537–8; 3rd edn, Theil 1 (1869), pp. 643–4; 4th edn, Theil 1 (1876), pp. 718–19.

[2] 5th edn, Theil 1, Hälfte 2 (1892), p. 794 n. 1, ZN, pp. 986 ff., also 'Über die griechischen Vorgänger Darwin's', *Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin* (1878), pp. 115–19.

In his later view Zeller appears to have held that the race of monsters died out without leading to any combinations sufficiently harmonious to survive.[1] This point was developed by Ziegler.[2] Separate limbs and monsters were a false start as it were. Οὐλοφυῆ, although more primitive than monsters, were better suited for adaptation and development. They appear on earth when the race of monsters has proved a failure and become extinct:

1. separate limbs.
2. monsters.

---

3. οὐλοφυῆ.
4. men and women.

This idea was adopted by Kranz.[3] It has since been taken further by Rudberg.[4] Rudberg holds that there was a similar break in the evolutionary sequence between οὐλοφυῆ and men and women. The germ of this idea can again be found in Zeller.[5] Rudberg's general thesis is that Empedocles' theory is not evolutionary in the modern sense at all. 'Es ist keine Entwickelung *aus einander*, eher ein *Nacheinander*.'[6] We have:

1. separate limbs and monsters (Rudberg does not separate these two).

---

2. οὐλοφυῆ.

---

3. men and women.

Kafka produced an ingenious, if fanciful, elaboration of Zeller's earlier and later views.[7] Kafka distinguished between the οὐλοφυεῖς τύποι of fr. 62 and the ὁλοφυῆ of Aetius. The οὐλοφυεῖς τύποι he agreed were primitive creatures and should be placed

[1] ZN, pp. 987 and 989 n. 1.
[2] 'Menschen- und Weltenwerden, ein Beitrag zur Geschichte der Mikrokosmosidee', *Neue Jahrbücher für das klassische Altertum* etc. 31 (1913), 534–47.
[3] (1949), p. 54, where fr. 102 is twice a misprint for fr. 62.
[4] 'Empedokles und Evolution', *Eranos*, 50 (1952), 23–30.
[5] ZN, pp. 987–8 and 989 n. 1.
[6] P. 27.
[7] (1923), pp. 216–25, and more briefly in his earlier work (1921), pp. 92–5.

with or before the appearance of separate limbs and monsters. The ὁλοφυῆ he thought were simply the first generation of men and women. They were formed directly from the elements, ἐκ τῶν ὁμοίων, as opposed to the next generation, Aetius' fourth stage, who arose from their parents in the normal way, δι' ἀλλήλων. Thus we have:

1. οὐλοφυεῖς τύποι fr. 62.
2. separate limbs.
3. monsters.
4. ὁλοφυῆ ἐκ τῶν ὁμοίων.
5. men and women formed δι' ἀλλήλων.

2. Perhaps the most reasonable scheme offered so far by an exponent of a two-world system is that given originally by Dümmler,[1] and expounded at greatest length by Bignone.[2] On this view οὐλοφυῆ begin the evolutionary sequence in Strife's world, while separate limbs begin the sequence under increasing Love. Both series terminate in the appearance of men and women:

Increasing Love	Increasing Strife
1. separate limbs and monsters.	1. οὐλοφυῆ.
2. men and women.	2. men and women.

The essentials of Dümmler's interpretation have been adopted by several scholars.[3] Millerd however doubts whether men and women were born under increasing Love as well as under increasing Strife. Other scholars, e.g. Burnet and Robin, simply fail to be specific on this point. Thus Burnet writes merely: 'Those of them (*sc.* the monsters) that were fitted to survive did so, while the rest perished.' Raven echoes the same ambiguity, 'Those creatures (he is speaking in particular of monsters) that were accidentally fitted to survive did so, while the rest perished.'[4] However, from his later remarks Raven appears to be more certain than

[1] (1889), pp. 217–21. [2] Pp. 565–98.

[3] Burnet, *EGP*, pp. 242–3; Millerd (1908), pp. 56–9; Bignone, pp. 565–98; Robin (1923), pp. 127–30; Scoon, *Greek philosophy before Plato* (Princeton, 1928), p. 90; Zafiropulo (1953), pp. 149–55; Guthrie, *In the beginning, some Greek views on the origins of life and the early state of man* (London, 1957), pp. 42–5; Raven (1957), pp. 336–40.

[4] P. 337.

Burnet or Robin that men and women were formed only in Strife's world.[1] If so, we should have:

Increasing Love	Increasing Strife
1. separate limbs	1. οὐλοφυῆ.
2. monsters.	2. men and women.

Minar has defended Aetius' sequence for Love's world and proposed the reverse sequence for Strife's world.[2] He marks a break, as others have done, between monsters and οὐλοφυῆ:

Increasing Love	Increasing Strife
1. separate limbs.	1. men and women.
2. monsters.	2. οὐλοφυῆ.
———	3. monsters.
3. οὐλοφυῆ.	4. separate limbs.
4. men and women.	

The argument here will be that the same evolutionary sequence was repeated in both worlds but in the reverse direction. Οὐλοφυῆ, we shall argue, are the creatures which best exemplify Love's unity and perfection. Therefore they appear at the end of the sequence in Love's world and at the beginning of the sequence in Strife's world. We have:

Increasing Love	Increasing Strife
1. separate limbs and monsters.	1. οὐλοφυῆ.
2. men and women.	2. men and women.
3. οὐλοφυῆ.	3. monsters and then separate limbs.

(Here as in our earlier summaries men and women are of course meant to include all animals such as we know them now.)

The peculiarity of this scheme is that it allows for a further stage beyond men and women. It is not surprising that such a striking idea should have been largely lost sight of in the ancient world, and ignored by modern scholars, except perhaps for some rather vague remarks in Mugler.[3] It is indeed only in the most recent times, so far as I am aware, that Empedocles has found

[1] Pp. 338–40.

[2] (1963), pp. 140–5. Minar's article appeared after this chapter had been first written.

[3] (1953), pp. 49–51.

those who would to some extent agree with him, notably the late Teilhard de Chardin.

We shall argue for each of the three stages in turn. First, we shall seek to establish that there were two evolutionary sequences, starting with separate limbs and monsters under Love and with οὐλοφυῆ under Strife. Next, we shall argue that men and women were born in both worlds. Finally, we shall consider the evidence for men and women under increasing Strife being torn apart into separate limbs, and for men and women under increasing Love being united into οὐλοφυῆ.

THE FIRST STAGE

The evidence is fairly straightforward in so far as it gives us separate limbs and monsters under Love and οὐλοφυῆ under Strife. It is here summarized.

THE FIRST STAGE OF INCREASING LOVE

Separate animal parts, the heads, arms and eyes described in fr. 57, the bones and flesh, hands, feet and so forth, mentioned in other sources, were formed under increasing Love: ἐπὶ τῆς φιλότητος according to Aristotle,[1] κατὰ τὴν τῆς φιλίας ἀρχήν according to Simplicius.[2]

Aristotle repeats the phrase ἐπὶ τῆς φιλότητος when he complains that Empedocles failed to describe the origin of the heavens ἐπὶ τῆς φιλότητος, *De caelo* 301 a 16. That phrase, as we have seen (pp. 175–7), can refer only to the beginning of increasing Love. Several accounts are preserved of the cosmogony which Empedocles *did* describe, the cosmogony of increasing Strife (references pp. 287 ff. below).

In the *De caelo*, 587. 8–26, Simplicius discusses explicitly the meaning of Aristotle's phrase ἐπὶ τῆς φιλότητος. He rightly concludes that the phrase describes the time when Love is on the way to victory, 587. 24–6: ἐπὶ τῆς φιλότητος οὖν ὁ Ἐμπεδοκλῆς

[1] *De caelo* 300 b 25–31, quoted p. 12 above, *De gen. anim.* 722 b 17–20 and b 25–6, *bis*.

[2] *Phys.* 371. 33–5, at greater length *De caelo* 587. 8–26, discussed in the second paragraph below.

ἐκεῖνα εἶπεν, οὐχ ὡς ἐπικρατούσης ἤδη τῆς φιλότητος, ἀλλ' ὡς μελλούσης ἐπικρατεῖν, ἔτι δὲ τὰ ἄμικτα καὶ μονόγυια δηλούσης. It is true that essentially Simplicius attributes to Empedocles a single sensible world. It is also true that when commenting on the later passage of the *De caelo* Simplicius interprets ἐπὶ τῆς φιλότητος of the Sphere.[1] But Simplicius is to some extent conscious of the difference between increasing Love and increasing Strife (see pp. 28–9 and 100–1 above). His present argument makes use of fr. 35, which does in fact describe the progress of increasing Love.

These separate animal parts were made from elements mixed inside the earth.[2] This is perhaps the meaning of fr. 96, which describes the formation of bones,

ἡ δὲ χθὼν ἐπίηρος ἐν εὐστέρνοις χοάνοισι . . .

Bones were one of the animal parts formed under Love.[3] Earth is named first in fr. 98 perhaps for the same reason, as Bignone suggests.

Solmsen would dissociate the formation of bones and blood from the description of the zoogony.[4] But his immediate grounds for doing so, the fact that bones were described in book one and the origin of men from οὐλοφυῆ in book two, are accounted for by there being two zoogonies (cf. pp. 204–5 below). Bones and flesh are specifically associated with Love's zoogony by Aristotle,[5] supported by Simplicius.[6]

As we should expect, both from their primitive character and from their formation inside the earth, these separate animal parts were the first creatures of the new world, γενέσθαι ὡς ἔτυχε μέρη πρῶτον τῶν ζώιων, Simpl. *Phys.* 371. 34.

These animal parts wandered about desiring to be united with one another, Simpl. *De caelo* 587. 18–19: ἐν ταύτηι οὖν τῆι καταστάσει (i.e. under increasing Love, cf. the remarks above) 'μουνομελῆ' ἔτι τὰ γυῖα ἀπὸ τῆς τοῦ νείκους διακρίσεως ὄντα ἐπλανᾶτο τῆς πρὸς ἄλληλα μίξεως ἐφιέμενα.

[1] *De caelo* 590. 24–591. 7, cf. p. 176 above.
[2] Arist. *De gen. anim.* 722b24–6, quoted below, p. 219. Aet. 5. 22. 1 (DK 31A78) reading with Diels, *Dox.*, ⟨ἔσω⟩ γῆς τούτων συγκραθέντων μερῶν, or preferably retaining the article, ⟨ἔσω τῆς⟩ γῆς, etc.
[3] Arist. *De caelo* 300b29.
[4] (1950), pp. 440–1.
[5] *De caelo* 300b25–31, quoted p. 12 above.
[6] *De caelo* 587. 8–26.

Love joined the animal parts together:

ἔπειτα συντίθεσθαι τῆι φιλίαι, Arist. *De anima* 430a30.

εἶθ' οὕτω συμφύεσθαί φησιν, cf. οὔτε ὥσπερ ζῶια ὄντα πλείω συμφύεσθαι ὥστ' εἶναι πάλιν ἕν, Arist. *De gen. anim.* 722b20–8.

ἔπειτα συνιέναι ταῦτα, Simpl. *Phys.* 371. 35.

οὐ γὰρ δυνατὸν ἦν ζῶια ἐξ ἀρχῆς γενέσθαι, ἀλλὰ σπέρμα πρὸ τῶν ζώιων...ἀλλ' οὐκ εὐθὺς ἡμιτόμων τῶν ζώιων ἡμιτόμοις συγκολλωμένων, Simpl. *Phys.* 381. 22–5.

Combined these will most likely be the monsters, βουγενῆ ἀνδρόπρωιρα and εἰλίποδ' ἀκριτόχειρα, frr. 60 and 61, mentioned by several authors.[1]

Simplicius in the earlier passage quoted from the *Physics*, 371. 35, certainly thinks initially of monsters. Possibly Aristotle in the passage cited from the *De anima*, 430a30, is thinking of normal creatures, as Bignone argues.[2] But initially at least monsters would be the immediate result of the union of separate limbs. The expression τῆι φιλίαι does not preclude monsters, as Bignone supposes. For the union of limbs to form monsters, although at this stage of the world's development still a haphazard union, will none the less have been due ultimately to the increasing influence of Love.

Monsters are still among the earliest creatures of the new world, for Aristotle refers to them as ἐν ταῖς ἐξ ἀρχῆς ἄρα συστάσεσι, *Phys.* 199b5. He then criticizes Empedocles, ἔτι ἀνάγκη σπέρμα γενέσθαι πρῶτον, ἀλλὰ μὴ εὐθὺς τὰ ζῶια. If ζῶια includes monsters and not only separate limbs, then εὐθύς will again imply that monsters, together with separate limbs, are the earliest creatures to appear in the zoogony. Simplicius uses εὐθύς in a similar sense, *Phys.* 381. 24 quoted above.[3]

Thus the evidence of Aristotle and Simplicius shows that separate animal parts and monsters arose under increasing Love and were the first creatures to be born.

[1] Aristotle, *Phys.* 198b32 (cf. DK 31B61), 199b5. Plutarch, *Adv. Col.* 1123B (cf. DK 31B60). Simplicius, *Phys.* 372. 1 (cf. DK 31B61). Aelian, *De nat. anim.* 16. 29 (cf. DK 31B61).

[2] Pp. 574–5, cf. p. 579 n. 1.

[3] For the meaning of ζῶια in Aristotle and for the possibility that some limbs were joined together as monsters from the moment of birth see pp. 234–6 below.

We are entitled therefore to ignore Philoponus' evidence here. Philoponus makes separate limbs and monsters arise in the period following the Sphere, when Strife was prevailing over Love.[1] He also makes monsters the second lot of creatures to be born after οὐλοφυῆ.[2] Both points are founded on a misunderstanding of Aristotle.[3]

In general Philoponus rarely shows any knowledge of Empedocles that could not have been derived from Aristotle.[4] Further, Philoponus sees Love and Strife as on the whole the principles of respectively the intelligible and the sensible world. Their alternation is really, Philoponus supposes, an account of the movements of the soul (references pp. 100–1 above). Consequently Philoponus pays little attention to the minor alternation of increasing Love and increasing Strife. This will have encouraged him to think of a single sensible world, and of separate limbs and whole-natured forms as belonging therefore to a single zoogony.

THE FIRST STAGE OF INCREASING STRIFE

Οὐλοφυῆ were the first creatures to be born, fr. 62. 4,

οὐλοφυεῖς μὲν πρῶτα τύποι χθονὸς ἐξανέτελλον.

They arose from the earth, χθονὸς ἐξανέτελλον, like the first creatures of Love's world.

Diels was certainly wrong to construe χθονός with τύποι, followed by Millerd,[5] by Ziegler,[6] and apparently by Kafka.[7] Diels' error is perpetuated in the latest editions of *Fragmente der Vorsokratiker*, but, since Kranz, with a passing bow to the correct

[1] *Phys.* 314. 7–315. 6, cf. [Philoponus] = Michael Ephesius, *De gen. anim.* 28. 9–14.

[2] *Phys.* 320. 6–9.

[3] For a full analysis see pp. 207–9 below.

[4] Philoponus' account of dreams is one exception, *De anima* 486. 13–17. But even on this point it has been argued that he is mistaken, by Verdenius, *Parmenides, some comments on his poem* (Groningen, 1942), pp. 20–1.

Philoponus also knows a couple of verses from the *Katharmoi* not quoted from Aristotle, fr. 115. 13–14, quoted e.g. *Phys.* 24. 20–1, and fr. 117, quoted *De anima* 140. 7–8. But both pairs of verses were fairly common property in antiquity. Fr. 115 is introduced as τὸ πολυθρύλητον ἐκεῖνο περὶ ψυχῆς. For fr. 117 see the sources listed in Diels, *Poet. phil. fragm.* Tischer (1843), p. 16, gives a similar estimation of Philoponus.

[5] (1908), p. 70.

[6] (1913), pp. 535–6.

[7] (1923), p. 223.

view: 'Rohgeballte Formen *von Erde* tauchten zuerst *aus ihr* auf' (my italics).

Buhl argues that to depend on the verb, χθονός requires a preposition.[1] But this is not the case, at least not with the verb used transitively. Apollonius Rhodius writes that the Hesperides χθονὸς ἐξανέτειλαν ποίην, 4. 1423–4.

Diels himself was apparently trying to account for all four elements in the οὐλοφυῆ. He gets three elements out of line 5,

ἀμφοτέρων ὕδατός τε καὶ ἴδεος αἶσαν ἔχοντες

by paraphrasing ἴδεος as *aeris calor*.[2] But earth is still missing; and earth in particular Diels thought had to be accounted for, since it is specified (casually) as one component of the οὐλοφυῆ by Aetius.[3] Diels therefore construes χθονός with τύποι. In fact χθονός clearly depends on ἐξανέτελλον. The reason why Empedocles mentions only two components of the οὐλοφυῆ, fire and water, is suggested below.

With the οὐλοφυεῖς τύποι we are in Strife's world. For the fire which forms the οὐλοφυῆ is κρινόμενον and θέλον πρὸς ὁμοῖον ἱκέσθαι. It is therefore under Strife's influence. Quite possibly it is because they belong to Strife's world that the men and women whose origin is here related are πολύκλαυτοι.

We even know that the two sequences were treated in different parts of the poem. The formation of bones, one of the animal parts that arose at the beginning of Love's world,[4] was described in the first book.[5] Οὐλοφυῆ were described in the second book.[6]

This, incidentally, provides a clue to the rearrangement of the fragments. Wilamowitz notes the absurdity of having fr. 96

[1] *Untersuchungen zu Sprache und Stil des Empedokles*, unpublished dissertation of the University of Heidelberg (1956), p. 49 n. 1.

[2] ἴδεος is Diels' reading for εἴδεος, *S.B.B.* (1884), 366 n. 1. The form εἴδεος is defended by Wackernagel, *Philologus*, 86 n.F. 40 (1931), 133–4. ἶδος is given by L.S.J.; εἶδος by DK. Minar (1963), pp. 141–2, also tries to introduce air as a special ingredient of the οὐλοφυῆ.

[3] 5. 19. 5 (DK 31A72). Diels and others may also have been influenced by the fact that Diogenes specifies the watery, the hot and the earthy as components of Anaxagoras' first animals, 2. 9 (DK 59A1). On the other hand we may notice that Hippolytus has ἐν ὑγρῶι where Diogenes writes ἐξ ὑγροῦ, *Ref.* 1. 8. 12 (DK 59A42).

[4] Arist. *De caelo* 300b28–30, cf. pp. 12 and 200 above.

[5] Simpl. *Phys.* 300. 20 quoting fr. 96. [6] Simpl. *Phys.* 381. 29.

placed after fr. 62.[1] The answer is that Love's zoogony was described before that of Strife. This tallies with the idea of increasing Love being thought of as in the past.[2]

We conclude then that the οὐλοφυῆ were formed at the beginning of increasing Strife. This was a time when Love was more powerful than she is now. It is not likely therefore, as has usually been supposed, that the οὐλοφυῆ will have been 'very rudimentary forms of existence'.[3] On the contrary, we may expect them to have been, as their name implies, more complete and more harmonious creatures than we are. Our expectations are confirmed when we find that they had no sex, fr. 62. 7–8,

> οὔτε τί πω μελέων ἐρατὸν δέμας ἐμφαίνοντας
> οὔτ' ἐνοπὴν οἷόν τ' ἐπιχώριον ἀνδράσι γυῖον.

The lack of a male member in the οὐλοφυῆ is almost certainly to be explained by their having shares—the implication is probably equal shares—of fire and water, line 5,

> ἀμφοτέρων ὕδατός τε καὶ εἴδεος αἶσαν ἔχοντες.[4]

Fire and water are for Empedocles the male and female element respectively.[5] The probable implication of line 5 will be therefore that the οὐλοφυῆ had no sex or were bisexed.

Initially, this may seem paradoxical. On the one hand we have argued that the οὐλοφυῆ are under Love's influence, in so far as they have (probably equal) shares of fire and water, and so have no distinction of sex. On the other hand they are formed by fire, which we have argued is under the influence of Strife, in that it is κρινόμενον and θέλον πρὸς ὁμοῖον ἱκέσθαι.

This paradox is in fact essential to Empedocles' thesis. The οὐλοφυῆ of fr. 62 appear when Love is more powerful than she is now, but in a world where Strife's power is destined to increase. There is the same paradox in Love's zoogony. Monsters are less

[1] (1930), p. 245.
[2] Arist. *De gen. et corr.* 334a5–7 πρότερον ἐπὶ τῆς φιλίας, cf. pp. 174–5 above.
[3] Millerd (1908), p. 70, following Zeller, as cited above, p. 196.
[4] For the spelling εἴδεος see p. 204 n. 2 above.
[5] Arist. *De gen. anim.* 764a1–b3 and 765a8–10 (DK 31A81). *De part. anim.* 648a28–31 (DK 28A52). Frr. 65 and 67. Aet. 5. 7. 1 (DK 31A81). Cf. the same two elements in Hermippus' account of wombs, *De astrol.* 2. 7, and in Lucretius' cosmogony, 5. 806.

complete and less harmonious creatures than men and women. To that extent, we may suppose, they manifest the power of Strife. But they are put together 'by Love' (see pp. 201–2 above). For, from Love's point of view, they are an advance upon separate limbs; and they belong to a world where Love's power is increasing.

There need be no implication that fire and water (or fire and water and earth) are the only elements of which the οὐλοφυῆ are composed, as Bignone supposes.[1] It seems likely enough that all four elements were combined in the οὐλοφυῆ. It is true that Aetius gives an account of 'the first breathing of the first (?) animal'.[2] This compares perhaps with the behaviour of Diodorus' wombs, λαμβάνειν αὐτίκα τὴν τροφὴν ἐκ τῆς πιπτούσης ἀπὸ τοῦ περιέχοντος ὁμίχλης,[3] and may be meant to apply to the first breath of the οὐλοφυῆ. But even so, Aetius' account, if it applies to the οὐλοφυῆ, need not imply that before the first breath air had no part in the constitution of the οὐλοφυῆ.

The bisexual or asexual nature of the οὐλοφυῆ is apparently paralleled in the life of plants, as recorded in Aetius.[4] Like the οὐλοφυῆ, plants were described as born in Strife's cosmogony, for they appeared πρὶν τὸν ἥλιον περιαπλωθῆναι καὶ πρὶν ἡμέραν καὶ νύκτα διακριθῆναι. The formation of the sun and the division of day and night were features of Strife's cosmogony.[5] Plants, Aristotle implies, were not described in Love's zoogony.[6] As with the whole-natured creatures, fire and water are especially significant ingredients in plants: τοὺς δὲ καρποὺς περιττώματα εἶναι τοῦ ἐν τοῖς φυτοῖς ὕδατος καὶ πυρός. Also, the amount of water determines whether or not plants lose their leaves. It is probably because of a harmonious mixture of fire and water that plants are bisexed: διὰ δὲ συμμετρίαν τῆς κράσεως τὸν τοῦ ἄρρενος καὶ τοῦ θήλεος περιέχειν λόγον.

Millerd mistranslates the sentence last quoted: 'Because [the elements] were mixed in due proportions, no account was made

[1] In his note on fr. 62 and pp. 578 and 581–2.
[2] 4. 22. 1 (DK 31 A 74).
[3] 1. 7. 4. For the connection of these wombs with Empedocles see p. 215 below.
[4] 5. 26. 4 (DK 31 A 70).
[5] References p. 50 n. 1 above and pp. 287–300 below.
[6] *Phys.* 199b9–13, discussed p. 225 below.

of male and female.'[1] Millerd also refers to the pseudo-Aristotelian work *De plantis* as evidence that Empedocles recorded a distinction of sex in some plants.[2] The relevant passages, with a passing ambiguity, in fact state just the opposite:

5. 13–14 Meyer (DK 31A70): *Abrucalis* (i.e. Empedocles) *autem sexum in his* (sc. *plantis*) *permixtum opinatus est.*

10. 6–9: *et quod contingit maxime et proprie inquirendum in hac scientia, est quod dixit Abrucalis, uidelicet si inuenitur in plantis sexus femineus et sexus masculinus siue species commixta ex his duobus sexubus.*

The ambiguity in this—whether both views, *si* and *siue*, are to be attributed to Empedocles—is resolved on the same page:

10. 15–17: *et debemus inquirere, utrum inueniantur illae duae species simul coniunctae in unum esse in plantis, sicut dixit Abrucalis.*

It follows that the οὐλοφυῆ are not like the monsters of Love's world mixed at random from male and female parts, fr. 61:

μεμειγμένα τῇι μὲν ἀπ' ἀνδρῶν
τῇι δὲ γυναικοφυῆ σκιεροῖς ἠσκημμένα γυίοις.

In Empedocles' eyes the bisexual or asexual character of the οὐλοφυῆ, due as it is to the (probably equal) mixture of opposite elements, will have been a perfection. The predominance of fire or water in men and women, still more the deformities of monsters, are evidence of the comparative force of Strife's power.[3]

It is true that οὐλοφυεῖς τύποι do not display μελέων ἐρατὸν δέμας fr. 62. 7. The adjective should probably be taken in an erotic sense, linked to the lack of normal sex in the οὐλοφυῆ. In that case it need not imply that the οὐλοφυῆ are, theoretically as it were, less harmonious creatures than men and women.

Οὐλοφυῆ therefore are the first creatures of Strife's world and entirely distinct from separate limbs and monsters.

As before with Love's world, we must discount Philoponus. In his version οὐλοφυῆ are born in the same evolutionary sequence

[1] (1908), p. 69. [2] P. 69 n. 4.

[3] This does not conflict with monsters being joined together τῇι φιλίαι, cf. p. 202 above. From the point of view of Love's power monsters are an advance upon separate limbs, even though they are a decline compared with men and women or οὐλοφυῆ, as noted pp. 205–6 above.

as separate limbs and monsters, *Phys.* 320. 7–8. Philoponus has misunderstood Aristotle's criticism, as also has Cherniss.[1] Aristotle wrote, *Phys.* 199b5–9:

καὶ ἐν ταῖς ἐξ ἀρχῆς ἄρα συστάσεσι τὰ βουγενῆ, εἰ μὴ πρός τινα ὅρον καὶ τέλος δυνατὰ ἦν ἐλθεῖν, διαφθειρομένης ἂν ἀρχῆς τινὸς ἐγίγνετο, ὥσπερ νῦν τοῦ σπέρματος. ἔτι ἀνάγκη σπέρμα γενέσθαι πρῶτον, ἀλλὰ μὴ εὐθὺς τὰ ζῶια· καὶ τὸ 'οὐλοφυὲς μὲν πρῶτα' σπέρμα ἦν.

Philoponus takes the reference to Empedocles as a straightforward illustration of how monsters are born and nothing more, *Phys.* 320. 6–9:

ὅπερ οὖν εἶπον, εἰ καὶ δῶμεν ἀληθῆ εἶναι τὸν Ἐμπεδοκλέους μῦθον ὡς κατ' ἀρχὴν συνέστη τινὰ βουγενῆ ἀνδρόπρωρα (*sic*), τοῦ οὐλοφυοῦς τούτου φθαρέντος δηλονότι συνέστη, ὥσπερ καὶ νῦν τὰ τέρατα γίνεται τοῦ σπέρματος φθαρέντος ἢ πλεονάσαντος ἢ ἐλλείψαντος.

Δηλονότι betrays Philoponus' ignorance. In fact Philoponus has run together three distinct criticisms.

1. First, Empedocles' monsters are introduced as an example of the failure of natural form to assert itself.

2. Ἔτι ἀνάγκη begins a fresh criticism. Empedocles' monsters arose independently.[2] This is implied by ἀλλὰ μὴ εὐθὺς τὰ ζῶια. Empedocles made animals arise *directly* from the earth. There was no earlier stage. They were not preceded by a seed, as Philoponus thinks, but they should have been.

3. Καὶ τὸ 'οὐλοφυὲς μὲν πρῶτα' σπέρμα ἦν is a corollary to this. The οὐλοφυές was a seed. This does not mean that monsters came out of οὐλοφυῆ. If they had done, Aristotle would have had no fault to find. As it is, Aristotle's point is that in his account of οὐλοφυῆ Empedocles acknowledges the principle that an animal must come from a seed, while this very principle he has denied in his account of monsters and separate animal parts. The one evolutionary sequence condemns the other. This kind of criticism is characteristic of Aristotle.[3]

[1] *ACP*, pp. 253–5.

[2] At least his separate limbs did, cf. pp. 200–3 above and 234–6 below.

[3] For another example, on the question of the alternate power of Love and Strife, see pp. 61 and 63 above.

The passing similarity between a seed and an οὐλοφυές, in that both are the source of an animal and as yet undifferentiated, is of course sufficient for Aristotle's purpose.[1] It is a sleight of hand for which he is criticized by Simplicius.[2]

Conclusion

If in both cases we discount Philoponus, our evidence from Aristotle and Simplicius and the fragments hangs together satisfactorily. We have two evolutionary sequences with no doubt about the opening stages of each. Under Love separate limbs are joined together to form monsters. Under Strife there arise whole-natured forms.

THE SECOND STAGE

We consider now the place of men and women. There is no doubt that men and women were formed from οὐλοφυεῖς τύποι. Whether they were formed also under increasing Love proves a more difficult question. But fr. 26, supported primarily by some remarks of Simplicius, leaves little doubt that men and women were formed under increasing Love as well as under increasing Strife.

THE SECOND STAGE OF INCREASING STRIFE

The whole-natured creatures Empedocles introduced to explain how men and women arose, fr. 62. 1–2.[3] They appeared, Simplicius tells us, *Phys.* 381. 29–30, πρὸ τῆς τῶν ἀνδρείων καὶ γυναικείων σωμάτων διαρθρώσεως. They were subsequently split apart, *Phys.* 382. 20, διακρίσεως ἤδη γενομένης ἐν αὐτοῖς καὶ διασπασθέντος τοῦ οὐλοφυοῦς. Cf. 382. 17–18, μήπω γενομένης ἐν αὐτῶι (*sc.* τῶι οὐλοφυεῖ) διακρίσεως. The conclusion is inevitable, though it has been denied by Rudberg, that men and women arose from the separation of the whole-natured creatures.[4]

The effects of this event may still be seen. The original division of male from female has to be repaired in the procreation of

[1] For the separation of the οὐλοφυές see the following section.
[2] *Phys.* 382. 15–21.
[3] For the possibility that ἄνδρες and γυναῖκες here mean male and female and are not specifically human see pp. 231–4 below.
[4] Rudberg (1952), 28; cf. p. 197 above.

children, Arist. *De gen. anim.* 722b8–17, 764b3–18. But the result of marriage is to increase and perpetuate Strife's disruption of Love's harmony. Therefore Empedocles exhorted his followers to abstain from intercourse, according to Hippolytus,[1] or from sexual activity more generally, according to Gellius.[2] The evil involved in birth is described by Plutarch, discussing both Heraclitus and Empedocles.[3]

The explicit association of Strife with marriage by Hippolytus and by clear implication in Plutarch, though it possibly comes from the religious poem, may none the less serve to overcome Zeller's objection against Dümmler's reconstruction, namely that γένεσις δι' ἀλλήλων, since it is a manifestation of Aphrodite (cf. fr. 17. 22–4), could not have come as a second stage of development in a world of increasing Strife.[4]

THE SECOND STAGE OF INCREASING LOVE

Were men and women also formed under increasing Love?

1. In fr. 26 we read:

> ἐν δὲ μέρει κρατέουσι περιπλομένοιο κύκλοιο,
> καὶ φθίνει εἰς ἄλληλα καὶ αὔξεται ἐν μέρει αἴσης.
> αὐτὰ γὰρ ἔστιν ταῦτα, δι' ἀλλήλων δὲ θέοντα
> γίνοντ(αι) ἄνθρωποί τε καὶ ἄλλων ἔθνεα θηρῶν
> ἄλλοτε μὲν φιλότητι συνερχόμεν' εἰς ἕνα κόσμον,
> ἄλλοτε δ' αὖ δίχ' ἕκαστα φορεύμενα Νείκεος ἔχθει,
> εἰσόκεν ἓν συμφύντα τὸ πᾶν ὑπένερθε γένηται.[5]

[1] *Ref.* 7. 29. 22 and 30. 3–4 (cf. DK 31B110).

[2] *Noct. attic.* 4. 11. 9–10, commenting on fr. 141.

[3] *De soll. anim.* 964D–E. For τῶι θνητῶι συνερχομένου τοῦ ἀθανάτου in Plutarch cf. *De exil.* 607C–E, and for the pessimistic sentiment cf. Hippol. *Ref.* 1. 4. The phrase in Plutarch, τρέφεσθαι τὸ γεννώμενον παρὰ φύσιν μέλεσι τοῦ γεννήσαντος ἀποσπωμένοις, explains, at least in part, Hippolytus' description of how marriage assists the work of Strife, 7. 29. 22, τὸ τῆς φιλίας ἔργον λύον ἀεὶ καὶ διασπῶν. Hippolytus may derive his extensive information on Empedocles from Plutarch's great work, which he quotes on one occasion, references pp. 32–3 above. (This suggestion is also made by Diels, *S.B.B.* (1898), p. 399, followed by Gilbert (1907), p. 118 n. 1.)

[4] ZN, p. 988 n. 2.

[5] The sense of lines 1–2 and of line 7 is not immediately obvious. Since the interpretation of these lines is not directly relevant to our present purpose, they are discussed separately, note 9, pp. 314–24 below.

The lines quoted and the remaining lines of the fragment, from their own content and from the parallelism with fr. 17 (lines 5–12 = fr. 17. 7–13), obviously refer to the cosmic cycle. Therefore they are not simply a description of the birth and death of the individual, as von Arnim believed.[1] Indeed content and position (ὀλίγον δὲ προελθών after fr. 21, Simpl. *Phys.* 33. 18) make it very likely that we have here a recapitulation of the teaching of the first part of the poem on the elements and the alternation of increasing Love and increasing Strife, as is recognized by Munding[2] and Groningen.[3]

In these lines ἄνθρωποι are men and women: they could hardly be οὐλοφυεῖς τύποι, nor monsters with human parts. Men and women then are born both when the elements are drawn apart by Strife, line 6, *and* when they are brought together by Love, line 5. This must mean that there are men and women in both worlds, increasing Love *as well as* increasing Strife.

It is true that the lines are formularized, a mosaic of repetitions from earlier in the poem.[4] From this it follows perhaps that the sequence of thought cannot be pressed too far. But despite the formularized nature of the verses, their literal and obvious meaning remains that men and women appear in both worlds.

2. Simplicius says definitely that men and women were formed from separate limbs, *Phys.* 371. 33–372. 11:

ὥσπερ Ἐμπεδοκλῆς κατὰ τὴν τῆς φιλίας ἀρχήν φησι γενέσθαι ὡς ἔτυχε μέρη πρῶτον τῶν ζώιων, οἷον κεφαλὰς καὶ χεῖρας καὶ πόδας, ἔπειτα συνιέναι ταῦτα

βουγενῆ ἀνδρόπρωιρα (*sic*), τὰ δ' ἔμπαλιν ἐξανατέλλειν.

'ἀνδρογενῆ' δηλονότι 'βούπρωρα (*sic*)', τουτέστιν ἐκ βοὸς καὶ ἀνθρώπου. καὶ ὅσα μὲν οὕτω συνέστη ἀλλήλοις ὥστε δύνασθαι τυχεῖν

[1] (1902), pp. 26–7. [2] (1954), pp. 140–1. [3] (1958), pp. 213–14.

[4] line 1 = fr. 17. 29.
lines 5–12 = fr. 17. 7–13 (we should probably add line 7 after fr. 17. 8, cf. pp. 323–4 below).
line 3 = fr. 17. 34.
lines 5–6 partly = fr. 20. 2 and 4.
line 11 = fr. 17. 6.
Fr. 17 is certainly earlier than fr. 26, since it appeared εὐθὺς ἐν ἀρχῇι, Simpl. *Phys.* 161. 15. Fr. 20 probably came soon after fr. 17, see pp. 224–5 below. In line 4 there is also a slight echo of a line from the *Katharmoi*, fr. 121. 2, cf. pp. 280–1 below.

σωτηρίας, ἐγένετο ζῶια καὶ ἔμεινεν διὰ τὸ ἀλλήλοις ἐκπληροῦν τὴν χρείαν, τοὺς μὲν ὀδόντας τέμνοντάς τε καὶ λεαίνοντας τὴν τροφήν, τὴν δὲ γαστέρα πέττουσαν, τὸ δὲ ἧπαρ ἐξαιματοῦν. καὶ ἡ μὲν τοῦ ἀνθρώπου κεφαλὴ τῶι ἀνθρωπίνωι σώματι συνελθοῦσα σώιζεσθαι ποιεῖ τὸ ὅλον, τῶι δὲ τοῦ βοὸς οὐ συναρμόζει καὶ διόλλυται· ὅσα γὰρ μὴ κατὰ τὸν οἰκεῖον συνῆλθε λόγον, ἐφθάρη. τὸν αὐτὸν δὲ τρόπον καὶ νῦν πάντα συμβαίνει. ταύτης δοκοῦσι τῆς δόξης τῶν μὲν ἀρχαίων φυσικῶν ὅσοι τὴν ὑλικὴν ἀνάγκην αἰτίαν εἶναι τῶν γινομένων φασί, τῶν δὲ ὑστέρων οἱ Ἐπικούρειοι.

The difficulty is to know whether we can trust Simplicius on this occasion.

Philoponus is a warning. Philoponus also says that separate limbs join together to form men and women, *Phys.* 314. 7–315. 6. But in other respects Philoponus has founded his account of Empedocles' zoogonical theories upon what he finds, or thinks he finds, in Aristotle (cf. pp. 203 and 207–9 above). In this case Aristotle does not say that men and women were born under increasing Love; at least he does not say so directly. Aristotle is describing a theory of chance survival, *Phys.* 198b 10–34. Empedocles' monsters are introduced primarily to illustrate creatures that perish (cf. pp. 216–17 below). Philoponus has probably himself manipulated Empedocles' theory, as he finds it in Aristotle, to make it also illustrate creatures that survive.

Has Simplicius done the same, as Zeller implies,[1] followed more forcefully by Millerd,[2] opposed by Bignone?[3] Simplicius is capable of letting what Aristotle says, or what he thinks Aristotle says, override facts that he could have found in the poem, if he had looked carefully enough (cf. pp. 26–30 above, the question of one rest period or two). In this case the mistake would have been an easy one. For Simplicius supposes that Empedocles has a single sensible world (cf. pp. 28–9 and 99–101 above). This will encourage him to think – as does Philoponus – of a single evolutionary sequence. And if there is only one evolutionary sequence, it will have to lead to men and women.

So far, the objections are not fatal. Unlike Philoponus, Simplicius is able to distinguish, at least implicitly, between the two evolutionary sequences. For he is able to reject Aristotle's treat-

[1] ZN, p. 989 n. 2. [2] (1908), pp. 58–9. [3] P. 573 n. 1.

ment of the οὐλοφυές as a seed, which Philoponus does not do (see pp. 207–9 above). Simplicius knew the poem (see pp. 150–1 above); and on this occasion his mind is not so wholly taken up with another problem as it was the other time we found him falsifying Empedocles (pp. 26–30 above). Then he had slipped into his error unawares. When he found that Eudemus disagreed with him, he lacked the impetus to retrace his steps. It would be difficult on the whole to believe that on the present occasion Simplicius' forthright statement is merely embroidery on Aristotle.

But there are still two specific grounds for suspecting Simplicius: (i) the purpose served by the details of liver, teeth and belly, and (ii) the generalizing attribution with which Simplicius closes his account.

(i) The details which Simplicius records are not in themselves unlikely: τοὺς μὲν ὀδόντας τέμνοντάς τε καὶ λεαίνοντας τὴν τροφήν, τὴν δὲ γαστέρα πέττουσαν, τὸ δὲ ἧπαρ ἐξαιματοῦν. Empedocles we know spoke of the liver. He called it πολυαίματον, fr. 150, an obvious enough fact perhaps, but close to the phrase which Simplicius uses, τὸ δὲ ἧπαρ ἐξαιματοῦν. The working of the belly could have been included in the account of eating, fr. 90. Aristotle records theories of the working of belly and nostrils similar to those mentioned here by Simplicius.[1] Several thinkers are referred to in a loose way: Empedocles is one of them.[2] Teeth may perhaps be due to Aristotle.[3] But their formation—though not necessarily their working—would easily have found a place in Empedocles' account of flesh, bone, sinew, nails, sweat and tears.[4]

But while the details themselves are likely enough to be genuine, the purpose they serve here, survival by adaptation due specifically to chance, is not likely to be genuine. For Empedocles fairly certainly did not hold the *overtly* anti-teleological view which his theories are here used to illustrate.

[1] *De part. anim.* 640b11–15. [2] 640b7–8.

[3] *Phys.* 198b24–6. For the faint possibility of further influence see Ross' note *ad loc.*

[4] Frr. 96 and 98. Aet. 5. 22. 1 (DK 31A78). Plut. *Quaest. nat.* 917A (DK *ibid.*). Cf. Arist. *De anima* 408a14–15 (DK *ibid.*), *De part. anim.* 642a18–24 (DK *ibid.*), *Met.* 993a15–24.

Aristotle supposes the activity of Love or Strife to be incompatible with movement due to nature or to chance. He therefore blames Empedocles for speaking on occasion as if the movement of the elements were random or natural movement.[1]

But Empedocles himself evidently did not feel that chance excluded the simultaneous activity of Love, for he writes, fr. 75,

Κύπριδος ἐν παλάμηισι πλάδης τοιῆσδε τυχόντα.

It is doubtful therefore whether in the fragments which Aristotle quotes and in the further fragments which Simplicius has selected to illustrate the role of chance in Empedocles' philosophy,[2] the verbs συγκυρεῖν, τυγχάνειν or even the apparent personification of τύχη have deliberately been given the meaning of chance as opposed to necessity, animism or providence, which they might have in later philosophical writing: whether therefore Empedocles intended to set up chance as a factor over against the activity of Love and Strife. Probably Empedocles supposed that Love and Strife rule the movement of the elements in a general way, while the behaviour of a particular element at a particular time 'happens' to be as it is. The impression – for what it is worth – from the language of the fragments noted is that the use of τυγχάνειν and so forth was intended to give the system a natural, not too mechanical an air. Things 'happened' to be so; they 'turned out' so.

If this is correct, then Empedocles' evolutionary theories will not have had the *deliberately* anti-teleological bias with which Simplicius clothes them. In that case it is perhaps possible that the proper working of liver, teeth and belly has been introduced here as part of the anti-teleological framework of which Empedocles was innocent.

(ii) Simplicius concludes his account by referring to the Epicureans and to all earlier thinkers who made material necessity the cause of natural events. Surely, it may be objected, any one thinker—Empedocles—has long been lost sight of.

This difficulty is not crucial. Even allowing for the alien tone, the overtly anti-teleological element, that we have just noted, the

[1] *Phys.* 196a19–24, *De gen. et corr.* 333b33–334a5, quoting frr. 53 and 54. For the probable context of these two fragments see pp. 269–70 below.

[2] *Phys.* 330. 31–331. 16, cf. pp. 150–1 above.

distinction is kept reasonably clear between what is peculiar to Empedocles and what Empedocles had in common with other ancient physicists and the Epicureans. All talk of human heads and oxen bodies is Empedoclean. The wider belief is that τὸν αὐτὸν δὲ τρόπον καὶ νῦν πάντα συμβαίνει. This does not mean that there are still βουγενῆ ἀνδρόπρωιρα to be found in the world, nor is it likely to mean that human beings are built up from separate limbs. Simplicius refers to the generalization of Empedocles' theory, ὅσα γὰρ μὴ κατὰ τὸν οἰκεῖον συνῆλθε λόγον, ἐφθάρη. This generalization of Empedocles' theory yields the principle that 'material necessity is the cause of natural events'. This was the principle which animated Empedocles' beliefs, and which he shared with others. It is at this point therefore, ὅσα γάρ etc., that Simplicius starts to widen his view to include other thinkers besides Empedocles.

This is the natural reading of the passage. Bignone takes a different view.[1] Monsters were a feature of Lucretius' zoogony, 5. 837–48, and Bignone claims that monsters composed of separate limbs are in fact attributed to the Epicureans by Simplicius in the present passage. Bignone adds the distinction found in Lucretius, 5. 878–924, between purely human monsters and monsters that were part human and part bestial. Empedocles' mixed monsters were decried by the Epicureans.[2] But purely human monsters, Bignone argues, were taken over from Empedocles by Epicurus.

Also Empedoclean, according to Bignone, are Epicurus' wombs taken from the οὐλοφυῆ.[3] But Bignone does not observe that the wombs or similar formations occur elsewhere, in the Diodoran group of cosmogonies.[4] These cosmogonies follow a single pattern and owe a number of features to Empedocles.[5] Their wombs are probably also inspired to some extent by the οὐλοφυῆ. Epicurus' wombs probably also derive from the οὐλοφυῆ. But Epicurus will not be the only person to have quarried from Empedocles.

[1] Pp. 629–30 and 'Empedocle ed Epicuro', *B.F.C.* 21 (1915), 156–61.
[2] Lucr. *loc. cit.* Plut. *Adv. Col.* 1123B.
[3] Lucr. 5. 805–15. Diogenes of Oenoanda, fr. 9 William (= 10 Grilli).
[4] Diod. 1. 7. 3; Hermippus, *De astrol.* 2. 6–8; Tzetzes, *Schol. in Hesiod.* vol. 3, p. 58 Gaisford, and *Exeg. in Il.* 56. 11–16 Hermann.
[5] See pp. 272–3 and 294–6 below.

The passage from Simplicius in no way implies, though of course it need not preclude, that monsters were taken over by Epicurus. (*And* by other physicists? Bignone avoids this point, though he suggests that Lucretius in the later passage may be attacking Posidonius as well as Empedocles.) The only evidence for Epicurus' having adopted Empedocles' all-human monsters is Lucretius. It is true that on the whole Lucretius follows Epicurus closely. But it is possible that Ziegler is right in suggesting that human monsters may be a concession to Empedocles on the part of Lucretius alone.[1]

If, on the evidence of Lucretius, we suppose that the Epicureans did believe in monsters as part of an evolutionary sequence that led to man, then the chances of confusion in Simplicius are perhaps slightly increased: for it might be argued that memory of Epicurus' zoogony, where monsters are part of an evolutionary sequence that leads to men and women, has made it easier for Simplicius to imagine that the same happened in Empedocles' world.

But it is difficult in fact to believe that because of the anti-teleological framework into which Empedocles' theories have been cast, and because of possible Epicurean use of Empedocles' theories, therefore Simplicius has so far distorted his knowledge of Empedocles as falsely to attribute to him the rise of men and women from separate limbs. That remains the backbone of Simplicius' account, and it is not likely to be false.

3. In a slightly earlier passage than that quoted above (p. 208), Aristotle apparently speaks of monsters perishing, *Phys.* 198b29–32:

ὅπου μὲν οὖν ἅπαντα συνέβη ὥσπερ κἂν εἰ ἕνεκά του ἐγίγνετο, ταῦτα μὲν ἐσώθη ἀπὸ τοῦ αὐτομάτου συστάντα ἐπιτηδείως· ὅσα δὲ μὴ οὕτως, ἀπώλετο καὶ ἀπόλλυται, καθάπερ Ἐμπεδοκλῆς λέγει τὰ βουγενῆ ἀνδρόπρωιρα.

The difficulty, here as on another occasion (pp. 12–14 above), is to know how much to see in the comparison with Empedocles. Does Aristotle mean only that βουγενῆ ἀνδρόπρωιρα are examples of ὅσα δὲ μὴ οὕτως? This is the opinion of Hamelin.[2] Or do Empedocles' monsters also illustrate ἀπώλετο καὶ ἀπόλλυται?

[1] (1913), pp. 537–8.

[2] *Aristote: Physique II, traduction et commentaire* (2nd edn, Paris, 1931), p. 149.

The latter view is probably correct. First, after λέγει it is easy to understand the immediately preceding verb, ὅτι ἀπώλετο. It is somewhat less easy to recreate, in effect, ὅσα δὲ μὴ ⟨συνέβη ὥσπερ κἂν εἰ ἕνεκά του ἐγίγνετο⟩. More important, the doubling of tenses with the use of the aorist is strangely elaborate if Aristotle is saying only that 'monsters perished and still do'. The aorist is most plausibly taken to describe the way in which Empedocles' monsters died out at the beginning of Love's world, which was thought of as in the past.[1] Theophrastus also compares present and past in very much this way when he is criticizing what happened under increasing Love in the light of what happens now.[2]

Aristotle's ἀπώλετο, if it applies to monsters, leads to a further, more general argument in favour of men and women appearing under increasing Love. Monsters, Aristotle tells us, were among the first creatures of Love's world, ἐν ταῖς ἐξ ἀρχῆς ἄρα συστάσεσι *Phys.* 199b5. In the present passage Aristotle implies that they died out. It is natural to suppose that Aristotle's ἀπώλετο means that they died out fairly soon, not simply that they disappeared with the advent of the Sphere. Even apart from Aristotle's remark, it would be odd if the monsters kept reappearing for the whole of Love's world, so that although Love's power increased, the conditions of animal life on earth remained unchanged. But if monsters occupied only the beginnings of Love's world, what happened for the rest of the time? There should be more creatures after the βουγενῆ ἀνδρόπρωιρα, creatures who would show an increase of Love's power. It is difficult to see what these new creatures could be if not men and women and other normal creatures.

4. Censorinus 4. 7–8 (DK 31A72) attributes to Empedocles the formation of men and women from separate limbs: *primo membra singula ex terra quasi praegnate passim edita, deinde coisse et effecisse solidi hominis materiam igni simul et umori permixtam.*

Very little, if any, reliance can be placed on this passage. There is taken to be only one evolutionary sequence, and as such it is bound to end with men and women. *Quasi praegnate* may well be

[1] See pp. 174–5 above. [2] *De caus. pl.* 1. 22. 2–3, see p. 191 above.

an authentic touch.[1] But *igni simul et umori permixtam* seems to betray confusion with fr. 62. 5,

ἀμφοτέρων ὕδατός τε καὶ εἴδεος αἶσαν ἔχοντες.

Censorinus has certainly omitted something, for he concludes his account with *cetera quid necesse est persequi, quae non capiant similitudinem ueritatis?* It may have been the οὐλοφυῆ which aroused Censorinus' incredulity, and which therefore he has conflated with men and women.

THE THIRD STAGE

The argument has taken us as far as Dümmler's reconstruction. Men and women are born in both worlds. Under increasing Strife they are formed from the separation of οὐλοφυῆ. Under increasing Love they follow separate limbs and monsters. The question that remains is: was the process of change continued in either world, so that under increasing Love men and women unite to form οὐλοφυῆ, while under increasing Strife they are torn apart into separate limbs?

THE THIRD STAGE OF INCREASING STRIFE

1. In fr. 20 we hear:

τοῦτο μὲν ἂν βροτέων μελέων ἀριδείκετον ὄγκον·
ἄλλοτε μὲν Φιλότητι συνερχόμεν' εἰς ἓν ἅπαντα
γυῖα, τὰ σῶμα λέλογχε βίου θαλέθοντος ἐν ἀκμῇι·
ἄλλοτε δ' αὖτε κακῆισι διατμηθέντ' Ἐρίδεσσι
πλάζεται ἄνδιχ' ἕκαστα περὶῤῥηγμῖνι βίοιο.
ὡς δ' αὕτως θάμνοισι καὶ ἰχθύσιν ὑδρομελάθροις
θηρσί τ' ὀρειλεχέεσσιν ἰδὲ πτεροβάμοσι κύμβαις.

Scholars have for the most part seen here a description of the life and death of the individual, or of youth and old age, from as early as Sturz and Steinhart,[2] and more recently Freeman.[3] Diels almost alone has referred the lines to the evolutionary

[1] See p. 125 n. 2 above. [2] (1840), p. 101a. [3] (1946), p. 190.

sequence.[1] Diels wrote: '*Hoc* (certamen Concordiae et Discordiae) *manifestum est per mortalium membrorum molem*, quae aut Concordia coeunt ad vivorum corporum vegetam unitatem aut Discordiae vi singillatim errantia monstra fiunt.' Diels believes in only one zoogony.[2] He therefore means apparently that some separate limbs become men and women through the power of Love, while Strife makes others into monsters.

As a description of life and death these verses are most curious. Συνερχόμεν' εἰς ἓν ἅπαντα γυῖα, τὰ σῶμα λέλογχε has to be a description either of what happens in the womb, so Panzerbieter, or of life in some more general sense, whereby γυῖα τὰ σῶμα λέλογχε are simply the 'membra, quae quis, dum vivit, habet', so Sturz. If we think of the womb, the meaning of βίου θαλέθοντος ἐν ἀκμῆι according to Panzerbieter is that 'das Leben selbst ist die ἀκμή des Daseins'. In the following lines κακαὶ Ἔριδες are diseases and sickness, while πλάζεται ἄνδιχ' ἕκαστα means '*vagantur*, incerta quo vadant, in quas naturas convertantur', so Karsten.

None of these explanations rings true. Aristotle does argue from what happens to separate limbs under Love to what happens in the womb now, *De gen. anim.* 722b24–6. But the impression Aristotle gives is that he has made the equation for himself:

> ἀλλὰ μὴν τοῦτον τὸν τρόπον συμβαίνει λέγειν τοῖς ἀπὸ παντὸς ἀπιέναι (*sc.* τὸ σπέρμα) φάσκουσιν, ὥσπερ τότε ἐν τῆι γῆι ὑπὸ τῆς φιλότητος, οὕτω τούτοις ἐν τῶι σώματι.

Further, the limbs in the fragment are not separate limbs, but limbs that have *already* found a body and *then* come together. How can this apply to parts of the seed inside the womb? If they have already found a body, how do they still come together? As for Panzerbieter's explanation of βίου θαλέθοντος ἐν ἀκμῆι, the distinction between life and existence is for Empedocles quite implausible.

[1] There are earlier some casual remarks to the same effect by Gomperz, (1896), p. 196. Diels is followed by Mugler (1953), pp. 51–2, and perhaps by Munding (1954), pp. 139–40 and 142.

[2] See his article, 'Symbola Empedoclea', *Mélanges H. Weil, recueil de mémoires concernant l'histoire et la littérature grecques dédié à H. Weil* (Paris, 1898), pp. 128–9.

No less implausible are the lines as a description of adolescence or maturity. Again, the limbs of the fragment have already found a body: how is it that in the progress towards maturity they 'come together to be all one'? As a description of sexual intercourse this would be very indirect. Later, κακαὶ Ἔριδες are possibly acceptable as sickness and disease.[1] But when a man dies his limbs do not leave the body and wander off alone along the breakers of life's sea, nor does anything very like that happen in the grave. Karsten's suggestion that the limbs wander about wondering what elements they should turn into is ridiculous.[2]

Diels is on the right track in trying to place the lines in a cosmic context. But the picture he presents will not bear examination. The limbs in the fragment have already found a body and then come together under Love, εἰς ἓν ἅπαντα. Diels starts from limbs that have not yet found a body and then find one—he leaves off where Empedocles begins. Then Diels says of lines 4–5 that his limbs 'singillatim errantia monstra fiunt'. In the fragment the limbs that have already found a body are torn apart—just the opposite process. It is also disturbing that Diels' monsters are brought about κακαῖς Ἐρίδεσσι, *Discordiae vi*, whereas Aristotle makes Love the cause of separate limbs joining together most

[1] Cf. perhaps fr. 121. 3.

[2] It is fascinating and instructive to watch the honest, but unresolved, doubts expressed by Buhl on the subject of this fragment (1956), pp. 112–13: 'Nimmt man diese Verse in ihrem wörtlichen Sinne nach unseren modernen Anschauungen, so ergeben sie in der Tat ein recht abstruses Bild, wenn die Glieder zerschnitten durch die Erides am Gestade des Lebens umherirren. Zu verstehen wäre allenfalls noch, wenn mit dem Zerschneiden durch die Erides der Tod gemeint wäre. Dann aber könnten die γυῖα nicht mehr am Gestade des Lebens umherirren. Oder soll das Gestade des Lebens euphemistisch stehen für den Tod? — Die unverständlichste Vorstellung ist wohl die, dass die γυῖα, die Glieder zerschnitten umherirren. Dabei wird man zunächst gewiss an fr. 57 denken, wo die einzelnen Glieder in einer urweltlichen Schaffensperiode der Natur noch nicht zueinander gefunden haben und vereinzelt umherirren — auch hier das gleiche Verb ἐπλάζοντο und ἐπλανῶτο.' But even having got so far, Buhl veers right off the point: 'Doch hören wir an unserer Stelle nicht von einem ursprünglichen Schaffensprozess, sondern es ist von der wechselnden Herrschaft von Philotes und Neikos, hier Erides, ganz allgemein die Rede und deren Auswirkungen auf die schon endgültig geschaffenen Lebewesen, dem Wechsel von blühendem Leben und...' (the original sentence is punctuated thus).

likely to form monsters, *De anima* 430a30, which is what we should expect (see p. 202 above).

To make sense of the lines we must broaden the context. Most scholars have thought of the life-span of a single creature. Diels is thinking of one phase only in the cosmic cycle. But what is here being described is the place of mortal limbs in the whole cycle of world change. 'Limbs that have found a body' are creatures compounded of mortal limbs in *either* world. Under Love they become further united, ultimately to form the Sphere. Under Strife they are torn apart into separate limbs: πλάζεται ἄνδιχ' ἕκαστα (the subject is still γυῖα or perhaps μέλη) περιῤῥηγμῖνι βίοιο.

We should note in particular that in line 4 the limbs are said to be torn apart *again*, αὖτε. On our interpretation this will be because separate limbs had already existed in the past under increasing Love.

It may be objected that this point, the inclusion of αὖτε, cannot be pressed. For it may be said that αὖ does no more than emphasize ἄλλοτε; so that the expression ἄλλοτε δ' αὖ can be used by way of simple contrast to ἄλλοτε μέν, without needing to imply that what has happened 'again' has in fact happened before.

This objection however is not altogether true. Admittedly in the various versions of the expression ἄλλοτε μὲν . . . ἄλλοτε δ' αὖ . . . there need be no *overt* reference to an earlier occurrence of what is said to happen 'αὖ'. But the situations in which the expression is used seem always to be of such a kind that an earlier occurrence is *implied*. For the expression seems invariably to be used with a plural connotation, i.e. to describe a repeated action; and an action that happens several times necessarily carries the implication that, when it happens, it happens 'again'.

The following is a complete list of instances of the expression in Homer and Hesiod:[1]

(i) *Il.* 18. 158–60. Ἄλλοτε Hector rushes into battle; ἄλλοτε δ' αὖτε he stands his ground. The implication is obviously that he *frequently* rushes forward and that he *frequently* stands his ground.

[1] For these references I have drawn on H. Ebeling, *Lexicon Homericum* (Lipsiae, 1880–5), and J. Paulson, *Index Hesiodeus* (Lundae, 1890). In the *Hymn to Apollo* 142 ἄλλοτε δ' αὖ has been emended to ἄλλοτε δ' ἄν. With αὖ the passage would carry the same implication as those listed.

(ii) *Il.* 18. 470–3. Hephaestus' bellows hold themselves ready, ἄλλοτε μέν when he is busy, ἄλλοτε δ' αὖτε in case he may want them. Both eventualities obviously occur a number of times.

(iii) *Il.* 18. 599–602. The boys and girls depicted on Achilles' shield ὁτὲ μέν dance in a circle (if that is the implication of the simile of the potter's wheel); ἄλλοτε δ' αὖ they dance in line. The implication is obviously that both formations occur more than once.

(iv) *Il.* 22. 169–72. Hector has offered Zeus many sacrifices, on the heights of Mount Ida, ἄλλοτε δ' αὖτε in the citadel. Clearly he has sacrificed in the city more than once.

(v) *Il.* 24. 9–11. Achilles is weeping for Patroclus in the night. Ἄλλοτε he lies on his side; ἄλλοτε δ' αὖτε he lies on his back. Obviously he is tossing and turning.

(vi) *Il.* 24. 511–12. Priam and Achilles weep together. Achilles weeps for his father, ἄλλοτε δ' αὖτε for Patroclus. Obviously he does not weep only once for each.

(vii) *Od.* 4. 100–3. Similarly, Menelaus says of himself: 'ἄλλοτε μέν τε I mourn; ἄλλοτε δ' αὖτε I leave off.' Even were this to happen once only, Menelaus could still perhaps in a sense stop 'again', in that he would revert to his condition before weeping. In fact Menelaus fairly obviously means that he mourns many times—and so, necessarily, he must as often stop.

(viii) *Od.* 5. 330–2. Odysseus' boat is caught in a storm: ἄνεμοι φέρον ἔνθα καὶ ἔνθα. Ἄλλοτε μέν τε the south wind throws it to the north wind; ἄλλοτε δ' αὖτε the east wind throws it to the west wind. Odysseus is not driven to the four points of the compass in turn, and then no more. He is driven backwards and forwards, and so necessarily by the same wind more than once.

(ix) *Hymn to Pan*, 8–11. Similarly, Pan wanders across the countryside: φοιτᾶι δ' ἔνθα καὶ ἔνθα. Ἄλλοτε μέν he is drawn to linger by gentle rivers; ἄλλοτε δ' αὖ he spends his days among the mountains. Obviously he visits both frequently.

(x) *Od.* 11. 302–4. Castor and Polydeuces ἄλλοτε μὲν ζώουσ' ἐτερήμεροι, ἄλλοτε δ' αὖτε / τεθνᾶσιν. They return to the underworld many times.

(xi) *Od.* 16. 207–10. Athena disguises Odysseus ἄλλοτε μέν as a beggar, ἄλλοτε δ' αὖτε as a well-dressed young man. Obviously the disguises are repeated.

(xii) Hesiod, fr. 14. Similarly, Periclymenus is given a variety of disguises. Ἄλλοτε μέν he appears as an eagle, ἄλλοτε δ' αὖτε as an ant, ἄλλοτε δ' αὖτε as a bee, ἄλλοτε δέ as a frightening snake. Again, each disguise will be repeated.

(xiii) *Theog.* 830–5. Typhoeus, set to guard the Titans, emits a variety of sounds. Ἄλλοτε μέν he speaks for the gods to hear; ἄλλοτε δ' αὖτε he makes a noise like a bull, ἄλλοτε δ' αὖτε like a lion, ἄλλοτε δ' αὖ like dogs; ἄλλοτε δ' αὖ he makes a hissing noise. Obviously this repertoire is not gone through only once.

When we come to Empedocles the same expression clearly carries the implication of repeated action. In fr. 17. 7–8 ἄλλοτε μέν everything comes together to be one; ἄλλοτε δ' αὖ they are separated by Strife. Even were we to think of only one occurrence of coming together (cf. instance vii above), it would still be true that things were separated 'again', in the sense that they would have to have been separated before they came together. In fact the verses that follow clearly describe an endless series of events, so that in a literal sense things are separated 'again', as they had been many times in the past.[1]

There is likely to be the same implication in fr. 20. Ἄλλοτε μέν limbs come together; ἄλλοτε δ' αὖτε they are torn apart. The implication is likely to be that they are torn apart *again* because they were torn apart, or existed separately, *before*.

It might be thought for a moment that in fr. 20 αὖ applies to the repetition of separate limbs in the *same* zoogony in successive world cycles. But we have already noted the evidence for separate limbs under increasing Love (pp. 200–3). In fr. 20 we are told that limbs wander apart 'again' under increasing Strife. The most obvious reference of 'again' will be not to the earlier occurrence of increasing Strife, but to the previous world of increasing Love, which, as we have already observed, was regularly thought of as in the past (see pp. 174–5).

Previous opinion has perhaps been influenced by Simplicius' use of this fragment to make his point against Alexander and others

[1] Cf. also τοτὲ μὲν . . . τοτὲ δ' αὖ . . . in lines 1–2 and 16–17, and ἄλλοτε μὲν . . . ἄλλοτε δ' αὖ . . . in the summary of the cosmic cycle in fr. 26. 5–6, discussed pp. 210–11 above.

that both Love and Strife are at work in the present world.[1] But this is no sign at all that the lines refer exclusively either to increasing Love or to increasing Strife. Either world or both worlds for Simplicius represent the sensible realm as opposed to the Sphere.[2]

In introducing the lines Simplicius says that they illustrate τὸ νεῖκος καὶ τὴν φιλίαν παρὰ μέρος ἐπικρατεῖν. This is probably the reference of τοῦτο, Diels' emendation of the manuscripts' τοῦτον. Simplicius' phrase is some confirmation, if confirmation is needed, that the reference of the lines is, as their content shows, a cosmic one.

Since the lines apply the alternate rule of Love and Strife to the history of mortal bodies, they likely enough came soon after the description of the cosmic cycle in fr. 17. In that case they would be represented in the summary which we have suggested Empedocles gives of his cosmic doctrine in fr. 26:

> γίνοντ(αι) ἄνθρωποί τε καὶ ἄλλων ἔθνεα θηρῶν
> ἄλλοτε μὲν Φιλότητι etc.[3]

Our interpretation explains Wilamowitz's puzzle[4] why the same line, αὐτὰ γὰρ ἔστιν ταῦτα, δι' ἀλλήλων δὲ θέοντα, is followed by a different line each time it is repeated, by γίγνεται ἄλλοτε ἄλλα καὶ ἠνεκὲς αἰὲν ὁμοῖα in fr. 17. 35, by γίγνεται ἀλλοιωπά· τόσον διὰ κρῆσις ἀμείβει in fr. 21. 14, and by a line specifying man and beast in fr. 26. The reason is that Empedocles' purpose is increasingly to draw out the implications of the permanence of the elements and their combination. In fr. 17 he describes simply the differences that follow from the elements. In fr. 21 he specifies that the differences are due to the process of mixing, which he has described probably before this in fr. 23. In fr. 26 he looks back in the same way to fr. 20 and specifies the results of the mixture, namely living creatures, human and otherwise.

It is true that if fr. 20 comes before fr. 26 this will place the lines we are studying before the detailed exposition of either evolutionary sequence. But that is no argument against the interpretation of the lines which has been given here, with its reference to

[1] *Phys.* 1124. 2–18. For Alexander's view cf. *De caelo* 528. 29–30 and see pp. 100–1 above.

[2] Further references pp. 28–9 and 99–101.

[3] For fr. 26 as a summary, see p. 211 above.

[4] (1930), p. 246.

separate limbs. Empedocles was quite capable of reserving the full meaning of his verses for those who had heard the poem more than once.[1]

Several minor points are relevant to this interpretation of the fragment.

Βροτέων μελέων refers to human beings only, as Panzerbieter saw, and not to 'la vie organique la plus générale', as Mugler wishes.[2] For the last two lines say that the same thing happens to non-human organisms. This implies that only human beings were in mind till then. Simplicius has evidently taken the line this way, *Phys.* 1124. 9–11, introducing the fragment: καὶ γὰρ καὶ ἐνταῦθα (i.e. in this world, cf. pp. 223–4 above) τὸ νεῖκος καὶ τὴν φιλίαν παρὰ μέρος ἐπικρατεῖν ἐπί τε ἀνθρώπων καὶ ἰχθύων καὶ θηρίων καὶ ὀρνέων ὁ Ἐμπεδοκλῆς φησὶ τάδε γράφων. We may compare the distinction between ἄνθρωποι and ἄλλων ἔθνεα θηρῶν, 'men and other kinds of animal', in fr. 26. 4.[3]

The mention of plants in line 6 is interesting. It shows that plants were included in the evolutionary cycle in a general way, even though, as Aristotle tells us, *Phys.* 199b9–13, no examples were provided of monstrous plants. Bignone uses the appearance of θάμνοι and Aristotle's remark as evidence against Diels' cosmic interpretation of the fragment.[4] The objection is valueless.

Γυῖα τὰ σῶμα λέλογχε may mean either 'limbs that the body has found' or 'limbs that have found a body'. The former interpretation has been adopted by most scholars. But the latter is preferable, if we understand the phrase literally, as we should. Limbs 'found a body' when Love drove them to increasing union. The phrase is sufficiently loose to be then applied to creatures torn apart in Strife's world, even though strictly these will not have been formed from separate limbs.

We may perhaps wonder whether monsters as well as normal creatures should in part be included under 'limbs that have found a body'. For some monsters, εἰλίποδ' ἀκριτόχειρα, fr. 60, may

[1] See p. 141 above and cf. Munding (1954), p. 139.

[2] 'Sur quelques fragments d'Empédocle', *Revue de Philologie*, série 3, vol. 25 (1951), 64 n. 1.

[3] For the same distinction in fr. 62 see pp. 231–4 below.

[4] P. 571 n. 1.

have had no central body. But there is no need to press this kind of point either way.

For θαλέθοντος in line 3 Karsten proposed θαλέθουσιν. The manuscript reading is to be preferred. The lack of a main verb in the first couplet, lines 2–3, with πλάζεται in the second couplet, lines 4–5, is paralleled by the construction of fr. 21. 3–6, as Panzerbieter noted.[1]

Βίου θαλέθοντος ἐν ἀκμῆι can be taken with συνερχόμενα with punctuation after λέλογχε, so Diels, or with λέλογχε, so Sturz and Panzerbieter. The latter is preferable. For this is simpler Greek, and it makes 'the peak of blooming life' the time when Love was joining separate limbs together. There were then, fr. 35. 16–17,

ἔθνεα μυρία θνητῶν,
παντοίαις ἰδέηισιν ἀρηρότα, θαῦμα ἰδέσθαι.

Later when creatures already formed are συνερχόμεν' εἰς ἓν ἅπαντα, that is approaching the unity of the Sphere, Love will presumably have to reduce the number of individual creatures, and there will be less exuberance.

Πλάζεται is probably significant. The same verb is used with ἐπλανᾶτο of separate limbs in fr. 57. Ἐπλανᾶτο Simplicius uses in the same sense, soon after quoting fr. 57 but perhaps paraphrasing a fresh use.[2] Fr. 57 and perhaps Simplicius' use of the verb therefore support the literal application of πλάζεται to separate limbs. The same verb in the form ἀποπλαγχθέντα is used again

[1] Wilamowitz (1930), pp. 247–8, would revise fr. 21 in a way that would remove this anomaly, but he is wrong to do so. Wilamowitz would place line 4 after line 5 on the ground that Aristotle, *De gen. et corr.* 314b20–2, and Plutarch, *De prim. frig.* 949F, quote lines 3 and 5 together. But the reason why both Aristotle and Plutarch do this is that both are interested in exemplifying contrasted characteristics of the elements, and lines 3 and 5 are alone suited to this purpose. Galen, *De simpl. medic. temper. ac facult.* liber 2, vol. 11, p. 461 Kühn, does not quote the verses together, as might be supposed from *Fragmente der Vorsokratiker*. Philoponus paraphrases lines 3 and 5 together as if he had read them without line 4, *De gen. et corr.* 17. 9–11. But Philoponus is simply following Aristotle, as he usually does, cf. pp. 203, 207–9 and 212–13 above, and as is shown in the present instance by his speaking of λευκότητα, cf. pp. 285–6 below. Fairbanks (1897), p. 83, supposes that Plutarch is also copying Aristotle, but cf. p. 33 n. 2 above. Plutarch, we may notice, does not follow Aristotle in having λευκός.

[2] *De caelo* 587. 19, quoted above, p. 201.

in a cosmic, though not a specifically zoogonical, context in fr. 22. 3.[1]

We conclude therefore that fr. 20 should be translated and interpreted as follows:

This (the alternation of increasing Love and increasing Strife) is manifest in the frame of the human body. Limbs that in the peak of blooming life have found a body, at one time (i.e. during increasing Love) come together through Love to be all one. At another time (i.e. during increasing Strife) they are torn apart again (i.e. under increasing Strife so as to be in the same condition as they were before under increasing Love) by wicked spirits of dissension, and wander each of them apart along the breakers of life's shore. The same is true for bushes and for fish in water palaces, for beasts that sleep on the mountain side and pigeons that float on wings.

2. There is one other piece of evidence to support the appearance of separate limbs in Strife's world.

Aristophanes' speech in Plato's *Symposium* has some elements that are obviously taken from Empedocles. Original double creatures are split into men and women as a result of their sin against the gods, 189 D ff. Each is now a σύμβολον of the other, 191 D. The general idea and the very word are Empedoclean.[2] So much has long been recognized.[3]

With these borrowings from Empedocles there is a good deal of invention on Plato's part. The three different kinds of οὐλοφυῆ have probably been at least in part invented to satisfy the particular interests of the Symposium in different kinds of Love, although at the same time there is some similarity with Empedocles' theories

[1] An interpretation of fr. 22 is offered below, pp. 305–13. The use of ἐπλάσθοντο and ἐπλανᾶτο in fr. 57 is noted by Bignone's reviewer, who advocates thereby a return to Diels' interpretation of fr. 20, Philippson, *B.Ph.W.* 41 (1921), no. 40, coll. 943–4.

[2] Arist. *De gen. anim.* 722b 11 (cf. DK 31B63).

[3] E.g. Bury in his edition of the *Symposium* (Cambridge, 1909; 2nd edn 1932) *ad loc.*; Ziegler (1913), pp. 529–73. Bury also compares Empedocles' monsters to Plato's double creatures, on the ground that they are both bisexual. But as we have tried to show, pp. 205–7, the bisexual or asexual character of the οὐλοφυῆ is quite different from the random mixture of male and female parts in monsters. The οὐλοφυῆ provide the primary comparison with Aristophanes' double creatures. For the οὐλοφυῆ are more harmonious creatures than men and women, and are split apart into men and women: which is essentially true of the double creatures in the *Symposium*.

of how some men are manlier than others.[1] The detailed arrangement of heads and genitals, 190E–191C, is probably all due to Plato.

There are besides sources other than Empedocles. The notion of a double-sexed creature may already at this time have been associated with the Orphic god Phanes. The combination of sexual characteristics, as we have noted, is in part Empedoclean: it also has something in common with Hippocrates.[2] The flat fish are a traditional joke.[3] The Titans also appear, 190B. These are of course a traditional element, although they may again in part owe their presence to Empedocles, for several authors mention the giants in connection with Strife.[4] Thus admittedly the soil for Plato's ideas in this speech is not exclusively Empedoclean.

The detail that concerns us here is this, 193A:

φόβος οὖν ἔστιν, ἐὰν μὴ κόσμιοι ὦμεν πρὸς τοὺς θεούς, ὅπως μὴ καὶ αὖθις διασχισθησόμεθα, καὶ περίιμεν ἔχοντες ὥσπερ οἱ ἐν ταῖς στήλαις καταγραφὴν ἐκτετυπωμένοι, διαπεπρισμένοι κατὰ τὰς ῥῖνας, γεγονότες ὥσπερ λίσπαι.

This has been explained as another of Plato's jokes.[5] It is true, the idea of a second separation is so naturally an extension of the first that we might well imagine it had been introduced by Plato as a *reductio ad absurdum* of the whole idea. But in the light of fr. 20 it is reasonably likely that Plato's bas-reliefs and λίσπαι are in fact a parody of separate limbs under increasing Strife.

We may notice that Plato completes the cycle by promising greater good, as well as warning of greater evil. As a reward for piety the primal sin can be redressed, and separate creatures can be united once more and return to their former bliss, 192D–E, 193C–D. In Empedocles' system this is what will happen in the world of increasing Love.

In general the underlying idea in Aristophanes' speech is that

[1] Fr. 67, for the reading see p. 285 n. 2. below. Cf. Censorinus, 5. 4 (DK 24A13), 6. 6–7, 6. 9–10, Aetius 5. 11. 1 (DK 31A81).

[2] *De victu* 1. 28–9 = vol. 6, pp. 500–4 Littré, cf. Bury, Introduction, p. xxxii.

[3] 191D4, see Ziegler (1913), p. 531, and Crusius, 'Märchenreminiscenzen im antiken Sprichwort', *Verhandlungen der 40 Versammlung Deutscher Philologen und Schulmänner in Görlitz* (Leipzig, 1889), pp. 34–5, in both of whom references are given.

[4] Plutarch, *De fac. in orbe lun.* 926E quoted above, pp. 31–2; Proclus, *in Plat. Parm.* col. 849. 13–15 Cousin; Cornutus, *Epidr.* 17, p. 30. 1–8 Lang. Cf. Bignone, p. 599 n. 1.

[5] Ziegler (1913), p. 547, cf. p. 557.

Love is not simply an immediate delight, as the other speakers of the *Symposium* suppose, but a yearning that can find complete fulfilment only beyond the present world. This idea is at root Empedoclean, though it is not peculiar to Empedocles. It belongs to the whole world from which Empedocles drew his religious inspiration. Diotima too is indebted to that world, for she too holds that Love is the desire for something beyond our immediate grasp. Plato makes a clear, if slight, acknowledgment of Diotima's community with Aristophanes, although externally it is cast in the form of a denial of what Aristophanes has said, 205 D 10–E:

καὶ λέγεται μέν γέ τις, ἔφη, λόγος, ὡς οἱ ἂν τὸ ἥμισυ ἑαυτῶν ζητῶσιν, οὗτοι ἐρῶσιν· ὁ δ' ἐμὸς λόγος οὔτε ἡμίσεός φησιν εἶναι τὸν ἔρωτα οὔτε ὅλου, ἐὰν μὴ τυγχάνῃ γέ που, ὦ ἑταῖρε, ἀγαθὸν ὄν etc.[1]

We conclude therefore that in sharing Empedocles' general other-worldliness Plato has at the same time taken the main structure of Aristophanes' speech from Empedocles' cosmic system. Double creatures are split into two, and threatened with a further separation, while at the same time there is a promise of return to the bliss of their primal unity. In the same way Empedocles' whole-natured creatures are split into men and women, and then torn apart into separate limbs, until under increasing Love they regain their former unity, ultimately by being reassumed into the blissful Sphere.

THE THIRD STAGE OF INCREASING LOVE

From fr. 20, supported by Aristophanes' speech in the *Symposium*, we can be reasonably sure that separate limbs reappeared under increasing Strife. Thus in Strife's world we have the complete sequence: whole-natured creatures, men and women, separate limbs.

There is no mention of whole-natured creatures reappearing in Love's world. But the example of Strife's world makes it quite likely that they did so. For there is no reason why there should be any major event peculiar to either sequence. At any point in the one world Love and Strife will be balanced in the same proportion as they are at the corresponding point in the other world. Consequently we may expect similar events to result in both worlds.

[1] Cf. perhaps 212C4–6.

This we do find when separate limbs reappear at the end of Strife's world. Therefore we may expect whole-natured creatures to reappear at the end of Love's world.

It is conceivable that this was not so: that whole-natured creatures appeared only in Strife's world. A similarly unique event was probably the storm of the elements.[1] This was presumably peculiar to Strife's world. But that exception to the general balance of the cycle is easily understandable. Rest 'explodes' into movement, but movement fades into rest.[2] There is no equivalent reason why whole-natured creatures should be restricted to one half of the cycle. As separate limbs recurred, it is likely that whole-natured creatures also recurred.

This is not to say that each sequence will have been described in full twice. Separate limbs and monsters are specifically referred to as occurring ἐπὶ τῆς φιλότητος or κατὰ τὴν τῆς φιλίας ἀρχήν.[3] It is clear that the only time these creatures were described in detail was at the beginning of Love's world. They will have been included in Strife's world, so we should say, for the sake of symmetry and completeness. Only a general reference will have been needed—the kind of thing we find in fr. 20. Monsters in Strife's world were perhaps never specified.

Some such general reference is all we can expect there to have been for whole-natured creatures under Love. Indeed, we almost seem to see the whole-natured creatures referred to in the limbs that have already found a body συνερχόμεν' εἰς ἓν ἅπαντα in fr. 20. But even if the whole-natured creatures in Love's world were not more clearly specified, the listener will probably have been intended to assume their existence from the rest of the plan.

MINOR PROBLEMS

A few minor problems remain to be considered. 1. How do we explain the confusion in Aetius? 2. Were there different οὐλοφυῆ for human beings and for each kind of animal, or did all kinds of animal, human and non-human, spring from a single οὐλοφυές? 3. How far was each evolutionary sequence a continuous process?

[1] References pp. 49–50 above and note 4, pp. 268–73 below.
[2] Cf. pp. 50–3 above. [3] References pp. 200–3 above, cf. pp. 172–7 above.

1. How do we explain the sequence of stages recorded in Aetius, listed above (p. 196)?

Aetius has only one evolutionary sequence, and therefore it is fairly certain to end with men and women. This means that had Aetius, or some earlier compiler, been presented with two complete evolutionary sequences, he would have preserved either the sequence of increasing Love in the order separate limbs, monsters, whole-natured creatures, men and women, or the sequence of increasing Strife in the order whole-natured creatures, separate limbs and monsters, men and women.

Now Theophrastus would most likely have put Love's zoogony before that of Strife, both because it was described earlier in the poem (see pp. 204–5 above), and because the world of increasing Love was thought of as in the past and was regularly mentioned before the world of increasing Strife (see pp. 174–5 above). Aetius therefore, if he had been presented with two complete sequences, would most likely have recorded the first sequence, the sequence of increasing Love. This, with men and women placed last, in fact gives us the order of stages recorded in Aetius: separate limbs, monsters, whole-natured creatures, men and women.

But it is perhaps more likely that Theophrastus recorded only the characteristic stages of each world and wrote: separate limbs and monsters and men and women under Love, whole-natured creatures and men and women under Strife. Love's world would again have been put first. A compiler who was ignorant of Empedocles' system of two worlds would very naturally omit the first mention of men and women. This would again give the sequence of stages found in Aetius.

It is unlikely that Theophrastus himself went further than this towards simplifying Empedocles' scheme, since he knew that there were two worlds in each cycle (see p. 178 above). Error could hardly be avoided, however, once Empedocles' views were listed side by side with zoogonies where a single line of development culminates in men and women.

2. Bignone argues that there was a common οὐλοφυές for man and animal.[1] More probably, the οὐλοφυεῖς τύποι described in fr. 62 were specifically human.

[1] In his notes on frr. 62 and 63; also pp. 553 n. 2 and 577 n. 1.

It is true, the wombs which we find in Diodorus' cosmogony and its counterparts, are like Empedocles' whole-natured creatures and are apparently pangenetic.[1] The animals which they contain are separated out among the elements on the principle of like to like. This process we find ascribed to Empedocles by Aetius, in a report which we have argued is probably correct (pp. 192–4). It is possible that in Empedocles the animals which are stationed among the elements on the principle of like to like have likewise been separated from common οὐλοφυῆ.

But that idea need not be Empedoclean. The model living creature of the *Timaeus* may have been sufficient to determine the pangenetic nature of Diodorus' wombs.[2]

Bignone argues that Aristotle and Simplicius, when they comment on fr. 62, speak of ζῶια in general, and that Aetius introduces the zoogony, including whole-natured creatures, as an account simply of ζῶια.[3] But while this may well imply that whole-natured creatures did not exist only in the case of human generation, it in no way implies that there were common οὐλοφυεῖς τύποι for men and animals.

On the contrary, in frr. 20 and 26 there is a distinction between men and beasts.[4] One suspects that there is the same distinction in fr. 62. Empedocles proposes to describe the origin ἀνδρῶν τε πολυκλαύτων τε γυναικῶν. Bignone holds that this means 'males and females'.[5] But πολύκλαυτοι suggests that human beings alone are intended: this will be so whether the sense is

[1] References p. 215 n. 4 above. There is nothing in Lucretius to show that his *uteri*, 5. 805 ff., are pangenetic, *pace* Bignone.

[2] 39E–40A, cf. 69C2. This argument of course presupposes the possibility of Platonic or post-Platonic influence on Diodorus' account. This would be allowed for, in different ways, by the two most recent longer studies of this part of Diodorus, Pfligersdorffer in 1959, and Walter Spörri, *Späthellenistische Berichte über Welt, Kultur und Götter*, in the series *Schweizerische Beiträge zur Altertumswissenschaft*, Heft 9 (1959).

Even if we suppose that the source or sources of Diodorus' account are exclusively fifth-century, it will still not be safe to assign the notion of pangenetic 'wombs' to Empedocles, simply because it appears in Diodorus: not, at least, until the provenance of Diodorus' account has been more clearly determined on other grounds.

[3] Arist. *Phys.* 199b7–13; Simpl. *Phys.* 382. 4–21; Aet. 5. 19. 5 (DK 31A72).

[4] See pp. 225 above and 280–1 below.

[5] This is probably also Zeller's intention, ZN, p. 987 n. 2.

active,[1] or passive.[2] There is the same ambiguity over ἀνδράσι in the last line. But if we began with men and women, then 'men' and not 'males' are probably intended, though not necessarily so.

Simplicius, *Phys.* 381. 29–30, introduces fr. 62 as coming πρὸ τῆς τῶν ἀνδρείων καὶ γυναικείων σωμάτων διαρθρώσεως. Ἀνδρεῖος is used predominantly and γυναικεῖος apparently exclusively of human beings.[3] This then is again an indication that the fragment deals specifically with the origin of man.

In his account of sexual passion Empedocles evidently again distinguished to some extent between men and beasts. Though he is himself discussing beasts Plutarch notes that fr. 64 dealt ἐπ' ἀνθρώπων, *Quaest. nat.* 917c. Aetius 5. 19. 5 (DK 31 A 72) writes of the stimulus of sexual generation, τοῖς μὲν πυκνωθείσης τῆς τροφῆς, τοῖς δὲ καὶ τῆς εὐμορφίας τῶν γυναικῶν ἐπερεθισμὸν τοῦ σπερματικοῦ κινήματος ἐμποιησάσης. Here τοῖς δὲ καί is probably intended to be exclusively human, as Bignone suggests,[4] and is probably derived from the fragment which Plutarch quotes, fr. 64,

τῶι δ' ἐπὶ καὶ πόθος εἶσι δι' ὄψιος ἀμμιμνήισκων.

If men and women originated from specifically human οὐλοφυῆ, there is no need to suppose that other than human οὐλοφυῆ were described in any detail. Whole-natured creatures for animals other than man would probably have been left to follow the analogy of whole-natured creatures in fr. 62. In the same way monstrous plants were catered for in the general scheme, without examples being given.[5]

There will probably have been no οὐλοφυεῖς τύποι for plants. It is true that Aetius' account of the zoogony which includes ὁλοφυῆ begins with the words Ἐμπεδοκλῆς τὰς πρώτας γενέσεις τῶν ζώιων καὶ φυτῶν . . .[6] But another entry in Aetius gives a detailed account of the formation of plants, or at least of trees, early in the world of increasing Strife. The opening words seem to indicate that the origin of plants was a process on its own: Ἐμπεδοκλῆς πρῶτα τὰ δένδρα τῶν ζώιων ἐκ γῆς ἀναφῦναί φησι.[7]

[1] So Pearson, *C.R.* 23 (1909), 50, and L.S.J., *s.v.*
[2] So Traglia (1952), p. 188.
[3] See L.S.J., *s.vv.*
[4] P. 357 n. 2.
[5] See p. 225 above.
[6] 5. 19. 5 (DK 31A72).
[7] 5. 26. 4 (DK 31 A 70). Cf. Lucretius 5. 783 ff.

The reason plants would not come from an οὐλοφυές will probably have been that plants, as we have seen (pp. 206–7), are of their nature permanently bisexed.

3. How far and in what sense was Empedocles' evolutionary sequence continuous?

Rudberg's thesis, that the evolutionary stages did not follow from one another, is true in a very limited sense.[1] It is true that there is no good evidence that for Empedocles the development of animal life was determined wholly by the principle of natural selection or chance survival,[2] or by the unfolding of a wholly immanent life force.[3] On the contrary, the close fitting of the zoogony into the cosmic cycle makes it evident that ultimately the evolutionary sequence was ruled by the same forces as govern the whole development of the cosmos. With this in mind we may like to say, with Rudberg, that in principle the evolutionary sequence is a *Nacheinander* not an *Auseinander*. This is apparently also Zeller's interpretaton.[4]

But that there was a literal and complete break between each stage of the evolutionary sequence is most unlikely. Whole-natured creatures we have seen were fairly certainly split into two (pp. 209–10). Separate limbs certainly combined to form monsters (pp. 201–2). Probably they also combined to form men and women: this is what Simplicius says (pp. 211–17), and what one would expect.

This still leaves room for what might be thought a partial discontinuity. For there is perhaps evidence that not all monsters were formed from the combination of previously existing separate limbs; that some monsters sprang up already formed.

The evidence is first fr. 59:

> αὐτὰρ ἐπεὶ κατὰ μεῖζον ἐμίσγετο δαίμονι δαίμων,
> ταῦτά τε συμπίπτεσκον, ὅπηι συνέκυρσεν ἕκαστα,
> ἄλλα τε πρὸς τοῖς πολλὰ διηνεκῆ ἐξεγένοντο.

From Simplicius' commentary it is clear that the first two lines describe the combination of separate limbs, evidently to form monsters, *De caelo* 587. 18–19. This explains ὅπηι συνέκυρσεν

[1] For Rudberg's thesis see p. 197 above. [2] Cf. pp. 213–14 above.
[3] For an animistic streak in Empedocles see pp. 125–6 above.
[4] ZN, pp. 988–90, also (1878), p. 119.

ἕκαστα – monsters were formed from limbs joined at random, because Strife still prevented any more harmonious mingling of the elements.[1]

What concerns us here is the last line. Other creatures are said to spring up *in addition*, πρὸς τοῖς, to the monsters that in the first two lines are being formed from separate limbs. This could mean simply that more separate limbs sprang forth in addition to those that were joining to form monsters. But it could mean that, as Love's power increases, monsters spring from the ground already joined together, and are therefore marked off from those monsters which are being formed above ground from already existing separate limbs. A third possibility would be that line 3 describes men and women and other normal creatures, which appears to be how Bignone understood the verse.[2] But this would be rather a sudden step. Also, the context in Simplicius deals solely with monsters and separate limbs.[3]

Our choice between the two former interpretations depends on the meaning of διηνεκῆ. It may be adverbial or adjectival. The adverbial sense, which is the usual interpretation, will be 'many things in addition (i.e. more separate limbs) sprang forth continuously'. The adjectival sense will be 'many things in addition sprang forth that were (already) continuous'. There seems no way of choosing definitively between the temporal and the spatial sense. The adjectival form is perhaps a slight indication that the meaning is spatial. In that case monsters would be intended: monsters arise from the ground 'continuous' or 'already formed'.

In the *Physics* Aristotle perhaps confirms that some separate limbs were joined together to form monsters from the very moment of their birth. After referring to monsters as ἐν ταῖς ἐξ ἀρχῆς ἄρα συστάσεσι, 199b5, Aristotle writes, b7–8: ἔτι ἀνάγκη σπέρμα γενέσθαι πρῶτον, ἀλλὰ μὴ εὐθὺς τὰ ζῶια. It may be that Aristotle has switched to thinking only of separate limbs here. These could also be classed as ζῶια,[4] and certainly arose directly from the ground without any previous stage.[5] But the run of the

[1] The identity of the *daimones* in the first line is a separate problem, and is discussed in note 10, pp. 325–36 below.

[2] Pp. 574–5 and 576.

[3] *De caelo* 586. 29–587. 26.

[4] *De gen. anim.* 722b 20–3.

[5] See pp. 200–1 above.

passage makes it perhaps more likely that Aristotle is still thinking, at least in part, of monsters. His criticism would then imply that some monsters arose directly, εὐθύς, i.e. already formed and with no previous stage.

Monsters that arise directly from the ground are, however, no real exception to the *de facto* continuity of the evolutionary sequence. Monsters and separate limbs are best thought of as a single first stage. At first separate limbs are formed. As Love's power increases, these join together to form monsters. At this time the earth is still fertile enough to produce creatures directly from herself. The limbs that now arise are perhaps joined together as monsters from the moment of their birth.

This is not surprising if, as we have observed, the sequence of Empedocles' zoogony depends not so much on some peculiarly and exclusively biological process of development, but on the relative force of Love and Strife in the world at large.

Other joints in the sequence of stages are of course not determinable. Thus whether men and women under Love were also formed directly, or only from previously existing limbs, is not a question that we can answer, and is of no great importance.[1] Likewise, whether under increasing Strife separate limbs were derived solely from complete creatures, or arose independently as well, is probably too detailed a point to be answered even if we had the poem in its entirety. The formation of whole-natured creatures under Love was probably still more obscure.

[1] Another conceivable possibility is that men and women were formed from the rearrangement of monsters. But this seems unlikely.

CHAPTER 10

CONCLUSION

The preceding chapters have attempted to reconstruct, so far as the evidence will allow, the chief features of Empedocles' cosmic cycle. With an occasional exception, the evidence for each point has been presented in isolation from any wider notion of the character of Empedocles' thought in general or its place in the sequence of Greek philosophy. This has been done deliberately, since in the past attempts to reconstruct the results of Empedocles' cosmic thinking have been hindered by predetermined attitudes to the rest of Empedocles' thought, and perhaps in particular to his religious philosophy.

The present chapter will attempt briefly and very simply to draw together our hitherto necessarily fragmented and somewhat isolated conclusions and set them as a whole in their proper place in the sequence of Greek thought in the fifth century. Such an attempt may seem to some readers to be subject to the vagaries of personal opinion. Also, the type of demonstration used in previous chapters, which we have tried to make as rigorous as is consistent with the nature of the evidence, will here be relaxed. The evidence for points in the present chapter should either be obvious, or would require a detailed examination beyond the scope of the present monograph.

EMPEDOCLES' PHILOSOPHICAL SIGNIFICANCE

Empedocles made a serious contribution to the potential differentiation of the idea of being that was the result in particular of Eleatic thought.

The world of Homer, it seems to me, is non-philosophical, primarily because the range of man's imagination and inquiry is limited both in space and in time. Around the earth there flows Oceanus, above is Olympus, below is Hades. What lies beyond

Oceanus and above Olympus and below Hades is not merely unknown. It is unthought of. The question of what lies beyond Oceanus is not simply unanswered. It is unasked.[1] The same is true of time. The generations of men are like the leaves of a tree. The gods are deathless, though all have been born. Whether all existence had a beginning, whether it will have an end, are again questions that have not been asked.

To compare the brilliant world of Homer with our fragmentary knowledge of Anaximander may seem at first sight preposterous. Still more preposterous may it seem to conclude that Anaximander's world is in a sense complete where Homer's is not. And yet Anaximander has in essentials created a philosophical universe. For implicitly Anaximander claims to have given a complete account of reality. Apart from the *apeiron* and its offspring nothing else exists. The earth is free-swinging, surrounded at equal distances by the rings of stars, moon and sun. The unconscious uncertainty that characterized the spatial bounds of Homer's world is gone. The implication of Anaximander's system is that spatially everything has been accounted for. Beyond the sun, if there is a beyond, can be only *apeiron*. Temporally, Anaximander's world was probably as complete. The *apeiron* is ageless and deathless. What there was before the world was born from the *apeiron* was possibly left unclear, but most likely the implication was that the *apeiron* was always there. The implication of infinite time in the past as in the future is explicit in Heraclitus, though with reference to the κόσμος, fr. 30:

κόσμον τόνδε οὔτε τις θεῶν οὔτε ἀνθρώπων ἐποίησεν, ἀλλ' ἦν ἀεὶ καὶ ἔστιν καὶ ἔσται πῦρ ἀείζωον...

To the present writer this change in the scope of what is thought to be known, more than any change in the way it is known, perhaps from mythical to more rational ways of thought, is what primarily distinguishes philosophy from pre-philosophy. Anaximander claims, at least implicitly, to be giving in some way a complete account of what exists. There are in the immediate sense no unconscious confines to his world as there are in Homer. 'This

[1] In the *Odyssey*, 10. 508 ff. and 11. 158 ff., Odysseus is spoken of as crossing to the far side of Oceanus: but the land he comes to is essentially part of the outworks of Hades.

is what there is, and this is all there is' is in effect the claim of Anaximander, as it is in effect the claim of Plato, of Aristotle and of Plotinus.

Unconscious confines do of course remain in Anaximander's account of the nature of what exists. For Anaximander, as for Anaximenes and Heraclitus, all reality is in some sense reducible to a single thing, whether this single thing is fire or the *apeiron*. Thus there is essentially only one kind of being. But there is already an incipient duality in explaining the world, as to some extent these early thinkers do, in terms of the one and the many. The one has properties or associations—it is deathless and in some sense divine, it controls the world—which do not belong to the many.

This incipient duality takes on a pronounced form in the timeless, changeless and motionless sphere of Parmenides.[1] So pronounced is the duality that Parmenides' one being excludes in some sense the existence of the many.

For Heraclitus fire and the products of fire, namely earth and water, are able to coexist. This is because they are in some sense the same thing. The properties of Parmenides' sphere are felt to be incompatible with the world of sensible plurality. What exists in an endless present, what is changeless and motionless, cannot at the same time be changing and moving and sensible.

But Parmenides has not properly reached the notion of two kinds of being. His one being retains shape and probably bulk and thereby extension. It is εὐκύκλου σφαίρης ἐναλίγκιον ὄγκωι fr. 8. 43. This is probably the reason, or one reason, why the world of sense has to be illusion, 'opinion'. Parmenides' one, timeless, changeless being is still spatial. As a result there is literally no *room* for anything else to exist.

Thus on the one hand Parmenides' sphere is too *different* from the sensible world for the two to be able to coexist, in the way that Heraclitus' fire or Anaximander's *apeiron* could coexist with the world, as in some way the underlying substance of the world. On the other hand Parmenides' sphere is too *like* the sensible world for the two to be able to coexist. For the One or the sphere

[1] The sphere is timeless, or at least in some sense without temporal limitations. The precise interpretation of fr. 8. 5 is not crucial for my thesis.

is still spatial, and no place is left therefore in which the sensible world could exist without impairing the timeless, changeless unity of the sphere.

Parmenides' philosophy sets a problem that does not receive its first decisive answer till Plato. Parmenides has, as it were, stripped his one being of all the attributes, time, change and movement, which he thought belonged to the sensible and in that sense the material world. But for something to exist he still supposed that it must exist in space. To be but not to be extended in space is a possibility of which Parmenides seems not to have been aware. This is the point at which Plato made a crucial advance. Plato's Forms are the first example of a being freed from space. Plato's Forms have all the negative attributes of Parmenides' one being. They lack colour, movement, change. What is important is that in addition they are not in space. They are 'neither in heaven nor on earth', *Symposium* 211A: οὐδέ που ὂν ἐν ἑτέρωι τινί, οἷον ἐν ζώωι ἢ ἐν γῆι ἢ ἐν οὐρανῶι ἢ ἔν τωι ἄλλωι. Plato sees a world of merely spatial being as a dream—perhaps the implication is a nightmare. He writes, *Timaeus* 52B: πρὸς ὃ δὴ (he is describing the receptacle) καὶ ὀνειροπολοῦμεν βλέποντες καί φαμεν ἀναγκαῖον εἶναί που τὸ ὂν ἅπαν ἔν τινι τόπωι καὶ κατέχον χώραν τινά, τὸ δὲ μήτ' ἐν γῆι μήτε που κατ' οὐρανὸν οὐδὲν εἶναι. Plato has freed himself from this dream because spatiality has become for him a kind of existence, not the whole of existence.

This further step, the stripping of spatiality from existence, the recognition that something can exist and not exist in space, is a crucial step. For it is probably because Plato's Forms are not in space that the sensible world can coexist with them. What we may call the existential status of the sensible world is of course much inferior to the status of the Forms. Indeed even to say that the sensible world has an 'existential status' is something of an anachronism, in that the sensible world is often described in terms of γίγνεσθαι as opposed to εἶναι. But the sensible world does exist for Plato in a way that it could not do for Parmenides. The sensible world is not for Plato an illusion to the extent that Parmenides thought it illusory. For in a quite literal sense Plato's Forms, unlike Parmenides' Sphere, do not *get in the way of* objects in the sensible world.

Plato has therefore for the first time properly distinguished two kinds of being. From the point of view of Plato's Forms the Presocratics were all limited to a single vision. However different in other ways they may have been, Parmenides' sphere, Heraclitus' fire and Anaximander's *apeiron* are all essentially of one kind in so far as they are extended in space. Plato for the first time describes a world where being is properly of two kinds, spatial and non-spatial.

Between Parmenides and Plato there is room for a good deal of manœuvre and development. Melissus, for example, strips Parmenides' one being of the notion of shape, in that he makes it no longer spherical but infinite. Melissus also excludes from the true being bulk, σῶμα or πάχος, a notion which had probably lingered in Parmenides' use of the word ὄγκος. Melissus wrote, fr. 9: εἰ μὲν οὖν εἴη, δεῖ αὐτὸ ἓν εἶναι· ἓν δ' ἐὸν δεῖ αὐτὸ σῶμα μὴ ἔχειν. εἰ δὲ ἔχοι πάχος, ἔχοι ἂν μόρια, καὶ οὐκέτι ἓν εἴη. But essentially Melissus still lives in a pre-Platonic world. True being, he tells us, is τὸ μέγεθος ἄπειρον fr. 3. The qualification τὸ μέγεθος betrays the assumption, probably the unconscious assumption, that existence is spatial. The one being may not have σῶμα or πάχος. But did it not have μέγεθος, it could not be.

Anaxagoras too is conditioned by the assumption of spatial existence. In everything there is a part of everything.[1] But νοῦς is not mixed with anything.[2] In this way Anaxagoras establishes, according to his own ways of thinking, two kinds of being. But νοῦς is still λεπτότατόν τε πάντων χρημάτων. It is still therefore in some sense spatial.[3]

[1] Fr. 12 (DK 2. 37. 22–3).

[2] Fr. 12 (DK 2. 37. 19).

[3] Fr. 12 (DK 2. 38. 2). Also, it is still ἵνα καὶ τὰ ἄλλα πάντα, fr. 14. This is quite different from Aristotle's unmoved mover being ἐκεῖ, i.e. at the circumference of the universe, *Phys.* 267b9. The unmoved mover is explicitly said to have no μέγεθος, *Phys.* 267b17–26, *Met.* 1073a5–11. It is localized, in so far as it is localized, only by its effects, which is of course true of many 'spiritual' beings in later thought.

The implications of λεπτός have been the subject of some discussion. I am aware that λεπτός is used of things which we might regard as 'abstract', e.g. of μῆτις, in a derogatory sense, in Homer, *Il.* 10. 226 and 23. 590. But it seems to me unlikely that λεπτός, whether as used thus in Homer, or as

Anaxagoras has attempted however to relate his two kinds of existence by putting his version of the one in control of the many, as to some extent had been the case before Parmenides. Empedocles also tries to establish the notion of two levels of reality and at the same time to relate the two. In the way he does this lies Empedocles' significance in the development of Ionian and Eleatic thought.

Empedocles is obviously indebted for his notion of the Sphere to Parmenides. The Sphere is motionless, homogeneous, equal from every direction, and lacking in all the sensible properties which we associate with sun, land and sea.[1] What is significantly new is the relation of the Sphere to the sensible world. Parmenides' sphere, since it exists in a timeless present, and since it is also spatial, reduces the sensible world to mere illusion. Empedocles attempts to preserve Parmenides' insight into the nature of the one and yet to restore the sensible world to reality by making the one and the many exist *in succession.* In this way the many are not merely illusory, while the one retains many of the characteristics of Parmenides' sphere, without yet ceasing to be spatial.

Plato, as we have observed, will solve the same problem by a non-spatial world of Forms which, precisely by reason of their non-spatiality, do not as it were interfere with the existence of the many, the sensible world. Empedocles' notion of the successive existence of the one and the many is in this way to a certain extent a primitive anticipation of Plato.

Empedocles' system is not of succession simply, but of *cyclic* succession, i.e. primarily an alternation of the one and the many. This was probably felt to be necessary in order to preserve the reality of the Sphere. Empedocles' assumption that existence is spatial, which he has in common with all thinkers before Plato, will not allow the Sphere to coexist with the sensible world.

applied to νοῦς by Anaxagoras, is compatible with the notion of the strictly immaterial in the sense of non-spatial.

I qualify my use of 'abstract' and 'spiritual', as it seems to me that neither term, although in some ways indispensable, can profitably be used in an analysis of fifth- and fourth-century Greek thought without a good deal of careful refinement, which would be beyond the scope of my present remarks.

[1] Frr. 27, 27a, 28. See especially pp. 20–5 and 149–54 above.

Empedocles therefore has to abandon the timelessness of the Sphere in order to restore the sensible world to reality. But had the Sphere been left to exist only in the past or only in the future, its reality would have seemed hopelessly diminished. Recurrence helps to preserve the reality of the Sphere.

Cyclic succession solves another problem. Parmenides asked of his predecessors, fr. 8. 9–10:

τί δ' ἄν μιν καὶ χρέος ὤρσεν
ὕστερον ἢ πρόσθεν, τοῦ μηδενὸς ἀρξάμενον, φῦν;

The Atomists answer this question by a universe infinite in time and space where worlds constantly decay and are constantly renewed. Empedocles' answer is similar, but on a more restricted scale. Empedocles' elements, by constantly becoming one from many and many from one, 'always are, fixed in a cycle', fr. 17. 13. There is no first beginning. There is no final end, frr. 8 and 15. Thus the world has no first moment of existence. And yet cyclic succession allows Empedocles to continue to explain the world, as the Ionians had explained it, in terms of its origin, in terms of a cosmogony. In this way Empedocles' endlessly successive worlds in part serve the same purpose as the Atomists' endlessly coexistent and successive worlds. Both systems avoid the impossibility of a first moment of creation, while retaining the traditional mode of explanation, explanation in terms of a cosmogony.

Thus Empedocles' theory of cyclic succession can be seen as providing an answer, both to Parmenides' description of the one at the expense of the many and to his dangerous ὕστερον ἢ πρόσθεν. Cyclic succession is in one sense an anticipation in cruder terms of Plato's two worlds. In another sense cyclic succession affords a parallel to Atomism, in that it attempts to explain the world in terms of a cosmogony, but without the temporal arbitrariness of earlier systems.

The minor alternation is probably from the present point of view of subsidiary importance. Empedocles' sensible world is a return both to sheer normality or common sense and to the tradition of Ionian philosophy. The Sphere is a recognition of the compelling attractiveness, to philosophers of the fifth century, of

Parmenides' one non-sensible being. The sensible world and Parmenides' One, for reasons we have suggested, cannot coexist, but in Empedocles' system alternate in endless succession. A simple way to ensure endless cyclic succession of the one and the many is for the sensible world to provide a movement away from the Sphere and a movement leading back to the Sphere. Thus within the major alternation there is the minor alternation of increasing unification and increasing separation, of increasing Love and increasing Strife.

From the religious point of view there may perhaps be more significance in the minor alternation. The world of increasing Love, or perhaps the parts of both worlds nearest to the Sphere, will have provided a setting for the golden age, which for other reasons, which we shall discuss in a moment, Empedocles wanted to include in the cycle.[1]

The two movements of increasing separation and increasing unification are divided by a time of total separation. From the description we have given so far of the significance of Empedocles' cycle it can be seen how meaningless would have been a non-cosmic period of total Strife that was in any way comparable in duration to the Sphere or to the worlds of increasing Love and increasing Strife. A full period of total Strife would not answer any of the needs that are answered by the Sphere and by the alternation of increasing Love and increasing Strife. The Sphere perpetuates Parmenides' insight. The worlds of increasing Love and increasing Strife are a means of ensuring the perpetual recurrence of the Sphere. Total Strife is simply the division of these worlds.

Thus the transitoriness of total Strife is an indication that Empedocles' construction of his cycle is not determined by fanciful motives nor entirely by the desire for mere symmetry. Cyclic succession including the major and the minor alternation and with only a transitional period of total Strife is in every way a serious response to the philosophical demands of the mid-fifth century.

Coincidental with the notion of cyclic succession is the need for two gods, Love and Strife.

[1] On the placing of the golden age in the cycle cf. pp. 76–7 above.

Parmenides' influence in leading to a separate 'moving cause' has often been remarked upon. Before Parmenides matter is alive. It moves of itself. Parmenides' description of the exclusive existence of a motionless, changeless reality leads in various ways to a more articulated notion of the cause of change and movement. Anaxagoras, as Aristotle vividly tells us, *Met.* 984b15–20, appeared like a sober adult among a lot of chatterboxes, with his notion of the cause of movement distinct from the original motionless unity. The Atomists as it were deny Parmenides' premiss. There is no primary unity in the literal sense (the unity of the nature of matter is another question). Movement and plurality are not derived therefore, but ultimate.

Like Anaxagoras, Empedocles believes in some sense in an original unity. Like Anaxagoras therefore, Empedocles introduces a cause of movement and separation. This is Strife.

But Empedocles' Sphere is far richer in associations than Anaxagoras' pre-cosmogonic mixture. Empedocles' one is not simply matter in a non-cosmic state, as it is in Anaxagoras' system, the world as it would be if left to itself, or more precisely the world as it was once and will never be again. Empedocles' Sphere is a permanently recurring feature of the life of the world. The rest and unity of the Sphere can no more be taken for granted and left without a cause than can the movement and plurality of the world of sense. There has to be a cause of rest and unity, no less than of movement and plurality. As well as Strife, therefore, there is Love.

Thus the Atomists avoid the need for a controlling cause because they make plurality and movement ultimate. Anaxagoras requires a single cause because he does not seek to perpetuate Parmenides' sphere in any direct and literal way, and because he has only a single generation of the cosmos. Empedocles attempts to perpetuate Parmenides' sphere in a literal sense. The consequent alternation of the one and the many requires two causes, a cause of the one as well as a cause of the many.

To a certain extent the contrast between Love and Strife on the one hand and the elements of the sensible world on the other repeats the dualism of the Sphere and the world of plurality. For Love to a certain extent inherits the characteristics of Parmenides' sphere.

Like Parmenides' sphere Love can be seen by the mind alone, not with the senses.[1] And yet like Parmenides' sphere Love has shape. She is 'equal (as it were to herself) in length and breadth'.[2]

Essentially the same applies to Strife as to Love. Strife too, we may be fairly sure, would have been visible to the mind alone. But Strife too suffers from the limitation of pre-Platonic being in having extension and thereby some kind of shape, 'equally balanced on every side (of Love)'.[3]

There is a further limitation on Love and Strife, coincident on there being two controlling causes. As well as having *shape*, Love has to have *position*. For Anaxagoras, νοῦς is 'where everything else is', fr. 14. Love too has to be present in a literal sense wherever her influence is to be felt. But Love cannot, like νοῦς, be everywhere. Love has to be limited in place so as to leave room for Strife. Hence Love has to be given position as well as shape. Thus Love is situated at the *centre* of the universe, in the form of a sphere. Strife is *outside* Love, and surrounds Love in a circular layer. Love expands and contracts as her power increases or declines. Strife does likewise.

Thus Love and Strife and the Sphere suffer equally, from the point of view of Platonism, from the limitations of spatiality, which are expressed in the case of the Sphere in terms of extension and shape, and in the case of Love and Strife in terms of extension, shape and position.

This two-sided dualism, the dualism of the Sphere and the many, and the dualism of Love (or of Love and Strife) and the elements, is repeated, though of course in different terms, in Plato. The dualism between the Sphere and the many, as we have suggested, coincides in a sense with Plato's dualism between the Forms and the sensible world. Plato's cosmic moving cause, from the *Phaedrus* onwards and with some anticipations in the *Symposium*, is soul. Just as Love in Empedocles is like the Sphere, in that she too lacks any sensible properties, so Plato's soul is approximated (but not made identical) to the nature of the Forms, for the first time and most specifically in the *Phaedo*.

[1] Fr. 17. 21, cf. Parmenides, fr. 7. 3–8. 1.
[2] Fr. 17. 20, discussed above, pp. 130–44.
[3] Fr. 17. 19, see again pp. 130–44 above.

The two-sidedness which in different ways is common to the dualism of Empedocles and of Plato has its roots deep in the limitations of fifth- and early fourth-century thought. The 'separateness' of the Sphere and of the Forms needed to be jealously preserved. Too active a role in the events of the sensible world would have impaired, we may suppose, the motionless perfection which Parmenides had described with, for his own generation and later, such persuasiveness. There cannot be therefore, in Plato or in Empedocles, a single entity which both perpetuates the desirable features of Parmenides' Sphere, its changelessness and motionlessness, and yet at the same time is responsible for the control of the sensible world. The Sphere and the Forms are as it were too precarious from an ontological point of view to be able to assume the functions of Love or the soul.

In Plato there are added complications. The Forms are objects of knowledge, which intensifies the need for their stability. And yet, as Plato asks himself in the *Sophist*, 248E ff., can what is supremely real lack life and movement? The dilemma is resolved to some extent in Aristotle, with his notion of unmoved causality. Aristotle's god is untouched by change or movement and is essentially non-spatial, and yet, in perhaps a somewhat remote sense, he is the divine first cause of change and movement in the sensible world.

Thus in some ways Aristotle achieves a simpler dualism than Plato or Empedocles was able to. Aristotle's god is at once the perfect non-spatial being and the controlling cause of the world. The unmoved mover thus combines in himself the status of Plato's Forms and the functions of Plato's soul. More remotely, Aristotle's unmoved mover is the heir both to Empedocles' Sphere and to Empedocles' two gods, Love and Strife. Empedocles could not achieve, as Plato and Aristotle have done, the co-existence of the Sphere and the sensible world. Neither Empedocles nor Plato could achieve, as Aristotle has done, the union of the most perfect being (the Sphere and the Forms) with the controlling cause of the world (Love or Love and Strife and the soul).[1]

[1] Obviously a very simplified account is being given here of the transition from Plato to Aristotle. Aristotle recognizes, as Plato mostly or always failed to do, that there can be a properly conceptual kind of being. There-

Cyclic succession of the one and the many and the consequent demand for a cause of unity and a cause of separation are the distinguishing features of Empedocles' cosmic system. Equal periods for the one and the many, or in more personal terms an equal period of rule for the god of unity and the god of separation, will in the fifth century have been the natural expression of such a system. The one belongs to Love. For an equal period the many belong to Strife.

Similarly, there will be equal times for the minor alternation, for the movement towards the one and movement away from the one. As we have observed in the body of the work (p. 83 above), it probably never crossed Empedocles' mind that an alternation could be composed of anything but halves.

Thus there are two alternations, both with equal parts. The Sphere lasts for as long as the world of movement and plurality. The time of movement and plurality is divided between a period of increasing unification and a period, equally long, of increasing separation.

Explanation in terms of an oath and of necessity in frr. 30 and 115 (if we may include the latter fragment for a moment in our consideration of the cosmic system) should probably be understood, at least initially, in the light of equal times. For example nothing could be more misleading than the following remarks of Gilbert on the subject of necessity: 'Es ist also nicht eine ordnende, eine gesetzmässig wirkende Macht, welche die Dinge in

fore in Aristotle most of Plato's Forms become 'ideas' in something like the modern sense of the word, in so far as their 'separation' is achieved only by thought and not in fact. This as it were releases the highest Forms to become attributes of the unmoved mover. Thus Aristotle's primary dualism is simpler than Plato's because Aristotle introduces a third kind of being, conceptual or abstract being. Plato, at least in the early and middle dialogues, was as blind to this distinction of being as the Presocratics in their turn were blind to the notion of non-spatial being. But this further distinction, in Aristotle, of non-spatial into conceptual and spiritual being is not directly relevant to Empedocles.

Again, Plato's soul does not simply become Aristotle's unmoved mover. Just as Plato's world of Forms is divided, some Forms becoming in one sense 'ideas' or concepts, and others becoming attributes of the unmoved mover, so too Plato's soul is divided. In part Plato's soul animates as it were the highest Forms to produce the unmoved mover. In part Plato's soul goes the way of the lower Forms and becomes immanent in the sensible world as *physis*. But this again is not directly relevant to the present brief survey of Empedocles.

ihrem Werden und Vergehen bestimmt; es ist eine finstere, eine erbarmungslose Schicksalsgewalt, welche planlos und ordnungslos bald die eine Kraft der Liebe, bald die andere Kraft des Streits in Bewegung setzt.'[1] Gilbert puts too much trust in later reports on the place of ἀνάγκη as the supreme force in Empedocles' system.[2] It would be wrong of course to minimize in any way the power over Empedocles' mind of an oath or necessity, notions which seem to us perhaps somewhat primitive or at least mythical. But it is equally wrong to suppose, as Gilbert apparently does, that once such forces appear on the scene any hope of reasoned thought has fled. The attractiveness for Empedocles of the oath and of necessity is probably closely joined to the notion of equality. If the cosmic cycle is to continue in endless succession, as Empedocles supposes it will (cf. fr. 16), and yet is to be dominated by two opposed forces, Love and Strife, there must be an equilibrium inherent in the structure of the cycle. This equilibrium is most obviously expressed in equal periods of rule for the two powers. This equality in its turn is in the fifth century naturally expressed in terms of necessity, and, since Empedocles is not dealing with inanimate forces, in terms of a necessity to which his two gods have bound themselves, or been bound, by an oath. The oath and necessity are not therefore a wholly new and certainly not an alien factor in the structure of the cycle. On the contrary, they are, from the point of view of the fifth century, in many ways the obvious expression of Empedocles' response to Parmenides in terms of a cyclic succession, with equal times, of the one and the many.

EMPEDOCLES' RELIGIOUS SIGNIFICANCE

It is true that the oath has other overtones. We have dealt hitherto with Empedocles' place in an already existing philosophical tradition. No less significant is Empedocles' innovation in introducing into this tradition a stream of religious experience which hitherto had for the most part lain outside the current of Ionian and Eleatic thought.

[1] (1911), p. 205. Cf. pp. 71–2 above.

[2] Plut. *De anim. procr.* 1026B (DK 31A45); Aet. 1. 26. 1 (DK *ibid.*); Aet. 1. 7. 28 (DK 31A32); Hippol. *Ref.* 7. 29. 23 (cf. DK 31B115); Simpl. *Phys.* 465. 10–13.

Pindar's second Olympian ode, written for the court of a Sicilian tyrant roughly contemporary with Empedocles, describes in vivid colours the joys that await the pure in an after life. Approximately the same stratum of experience is expressed in verses found (from a later date) at Thurii. Pindar's description of a life beyond the grave is a complete reversal of Homeric sentiment. The dead are not nerveless shadows. True life begins after death.

Before Empedocles this current of religious experience had lain outside the area of philosophical speculation.[1] This is not to say that there is not a religious element, and in some ways a strong one, in Xenophanes and Heraclitus and among the Ionians. But there is no sign of the specific otherworldliness which appears in Pindar and on the gold plates from Thurii. Indeed the world which Pindar describes could hardly be fitted into the world described by the Ionian philosophers. Pindar's equal days and nights, the gentle breezes and isles of the blest, fairly evidently belong to some remote part of a popular non-philosophical universe.

Empedocles' theory of cyclic succession for the first time provides a place for this otherworldliness within a fully philosophical system. In the same way as Parmenides' true being cannot coexist with the many, so too the ideal religious world of bloodless sacrifice, where beasts are tame, cannot find a place in the present world. Both therefore are made to exist in the past and in the future. Parmenides' true being, the sphere, becomes a blissful god. Other details of the adaptation lie beyond the scope of the present study. But it is fairly clear that in his descriptions of the golden age Empedocles in some way invested the parts of his cycle that

[1] This statement would obviously have to be qualified in any broader survey by consideration of the Pythagorean tradition. The Pythagoreans are not brought into the present account, partly to avoid undue proliferation, but more because Pythagorean 'philosophy' does not seem to me directly comparable with the philosophy of Empedocles and other major Presocratic thinkers. Detienne speaks very much to the point when he remarks that 'le pythagorisme nous offre l'exemple d'une pensée à mi-chemin entre le μῦθος et le λόγος', *De la pensée religieuse à la pensée philosophique, la notion de* daïmôn *dans le pythagorisme ancien*, in the series, *Bibliothèque de la Faculté de Philosophie et Lettres de l'Université de Liège*, fasc. 165 (Paris, 1963), p. 169.

were remote from the present world with the characteristics of the ideal world described by Pindar.

From this point of view, Empedocles again offers a primitive anticipation of Plato. There is no single origin of Plato's ideal world. The Forms in part satisfy Socrates' search for definitions. In part they perpetuate and complete the Eleatic notion of perfect reality. But in part too the world of Forms satisfies the religious aspirations that impressed Plato so deeply on his visits to Sicily. Again therefore, this time in the area of religious experience, Empedocles' theory of cyclic succession attempts to answer the same needs as Plato's non-spatial world of Forms.

Thus the religious intuition of a world free from the sorrows of our present life, at first, in its pre-philosophic stage, looks for its home to a remote part of the earth. This is no longer possible in the scientific philosophical universe of the Ionians. Empedocles brings this ideal world into his philosophy by making the ideal world remote not in space, but in time. Plato attempts the same union of religion and philosophy. In Plato the soul's true joy is found in a non-spatial world of Forms. In this way, in Plato, the other world is made remote not in space and not in time but in its mode of existence.

NOTE I

ARISTOTLE'S UNDERSTANDING OF ΑΚΙΝΗΤΟΙ ΚΑΤΑ ΚΥΚΛΟΝ

Fr. 26. 12, *Phys.* 250b26–251a5. Cf. pp. 7–9

SECTION 1

In modern times von Arnim first claimed that Aristotle had misunderstood the verses quoted in the last book of the *Physics* by finding a reference in ἀκίνητοι to a time of rest in between movement.[1] For only so, von Arnim seems to think, do the verses illustrate what they are intended to illustrate, alternate rest and movement. Von Arnim now has a large following with no opposition.[2]

In the ancient world the view that Aristotle had taken ἀκίνητοι to mean literally motionless was held by Alexander and Simplicius.[3] Alexander's idea was to dissociate ταύτηι δ' αἰὲν ἔασιν from ἀκίνητοι κατὰ κύκλον, so that the latter phrase could refer to literal immobility without disturbing the sense of what precedes. This at least was the interpretation that Alexander fathered on to Aristotle; whether he held it was the correct interpretation of the verses does not emerge clearly from Simplicius' account. Simplicius restored the unity of the last line and said plainly that Aristotle had misunderstood ἀκίνητοι: the first three lines Aristotle has referred to movement, and the last two lines to rest. This is substantially the modern view.

An indication of the uncertainty of this view is to be seen in the difference over whether Aristotle has understood the lines to refer to one rest period or to two, and whether his interpretation would correctly represent Empedocles' cycle despite the misunderstand-

[1] (1902), pp. 17–18.

[2] Probably Millerd (1908), p. 54. Bignone, pp. 562 n. 3, 592 n. 1, and in his notes on fr. 17. 10. Cornford, Loeb edition of the *Physics* (1934) *ad loc.* Cherniss, *ACP*, p. 175 n. 130. Probably Ross, edition of the *Physics* (Oxford, 1936) *ad loc.* Munding (1954), p. 135. Solmsen (1958), 277, and (1960), p. 223 n. 4. Kahn, *Anaximander and the origins of Greek cosmology* (New York, 1960), pp. 23–4.

[3] Simpl. *Phys.* 1123–5. Alexander is quoted, 1125. 3–14.

ing of ἀκίνητοι. Thus Cornford thought that Aristotle was thinking of two rest periods and that he was right to do so; von Arnim that he was thinking of one rest period and was right to do so; Millerd, Bignone and Cherniss that he was thinking of two rest periods, whereas in fact there was only one.[1]

This difference of opinion is crucial. We have already argued in chapter 2 that there was only one rest period in Empedocles, and that Aristotle knew there was only one. This conclusion will play a large part in determining whether or not Aristotle has misunderstood ἀκίνητοι.

SECTION 2

We begin by considering the reasons which have led scholars to think that Aristotle misunderstood ἀκίνητοι.

1. Cherniss claims that Aristotle has misapplied to Empedocles his own theory that between opposed movements rest must intervene, so as to give a time of rest at both extremes of total Love and total Strife. We have already seen that this line of thought has influenced Simplicius, and made him think of two rest periods in each cycle (see pp. 26–30), but that it cannot have influenced Aristotle, at least not in the same obvious way. For Aristotle knew that there was only one rest period, with no rest at the extreme of total Strife (see pp. 7–19).

2. What of the argument that only if Aristotle has misunderstood ἀκίνητοι does the quotation illustrate what it is said to illustrate, the alternation of movement and rest? This is put by Miss Millerd with her usual forcefulness: 'He (Aristotle) cites as authority for his statement lines of Empedocles that cannot possibly have the interpretation he gives them, and which have nothing to do with the question in hand.'[2]

It is not true that only a misunderstanding of ἀκίνητοι makes these lines relevant to Aristotle's purpose. We have already remarked upon the close association of rest with unity and of movement with plurality (pp. 38–45 and 101–3), and we have noted Aristotle's familiarity with this habit of thought (pp. 39–40). It is not impossible that Aristotle should have seen in these lines

[1] Cf. pp. 4–7 above.

[2] (1908), p. 54.

the alternation of rest and movement *underlying* the alternation of unity and plurality: 'In so far as the elements become one (and at rest) from being many (and moving), and then again from being one (and at rest) grow apart to be many (and moving) etc.'

This is made more likely if, as we have also suggested (pp. 19–20), no complete description was given of the alternation between rest and movement. Aristotle's alternative to quoting the lines he does will have been to quote snippets like those that Eudemus has chosen (see pp. 20–5 and 27 above), and these obscure the point which for Aristotle was of paramount importance here, the succession of the alternation between rest and movement.

Finally we may point out that Aristotle's quotations are not meant to prove a point. They are illustrations. And to an audience familiar with Empedocles and with the habits of fifth-century thought these verses may have been a good enough reminder of the alternation between rest and movement that underlay the alternation between unity and plurality.

It is not perverse then, in spite of the unanimity of scholars past and present, to ask that the question of Aristotle's misunderstanding of ἀκίνητοι be looked at with fresh eyes. For Aristotle has not here, in any obvious way, been biased by his own theories of rest and movement. And a misunderstanding of ἀκίνητοι is not the only way, even if initially it seems perhaps the simpler way, in which the lines can be seen as an illustration of Aristotle's theme.

SECTION 3

Aristotle has left us a guide to his understanding of the verses in his note: 'For we must understand him to mean "in so far as they change from here".' (The difference in reading is considered in the next section, p. 259.)

Ἐνθένδε alone or ἐνθένδε ἐκεῖσε could mean at first sight any one of the following:

if we think of the minor alternation,

1. from increasing Love to increasing Strife and *vice versa*,
2. from increasing Love to increasing Strife,
3. from increasing Strife to increasing Love;

if we think of the major alternation,

4. from the world of plurality to the Sphere and *vice versa*,
5. from the world of plurality to the Sphere,
6. from the Sphere to the world of plurality.

On none of these interpretations is it probable that Aristotle has misunderstood ἀκίνητοι.

1. The first meaning has been chosen by Cornford, 'from the one process of world-formation to the other', and by Ross, 'from the motion towards ἕν to motion towards πολλά, and *vice versa*'.

Cornford and Ross suppose Aristotle to be thinking of two rest periods, and necessarily so, if this is how they interpret his note. For if ἦι δὲ τάδ' ἀλλάσσοντα refers in Aristotle's mind to change from either world to the other (from increasing Love to increasing Strife and *vice versa*), then the natural reference of the next line and so of ἀκίνητοι will be to rest at *both* termini.

But Aristotle did not think that there were two rest periods. Accordingly he cannot, on this interpretation, have taken ἀκίνητοι to mean literally motionless. For it would be difficult, indeed impossible, to read the lines as if they meant: 'In so far as the elements change from becoming one to becoming many *or* from becoming many to becoming one, to that extent they are at rest *only* when they have become one.'

We must note that this interpretation gives the correct meaning of ἦι δὲ τάδ' ἀλλάσσοντα. Empedocles does mean 'in so far as these (worlds or things) never cease changing from *either* process to the other'. If therefore we adopt any of the interpretations that follow, Aristotle must have misunderstood both ἀκίνητοι and the reference of ἦι δέ.

2. 'In so far as they change from becoming one to becoming many, they are at rest.' This is possible in so far as it makes the Sphere alone at rest. Further, on this interpretation κύκλος might conceivably have been taken by Aristotle to mean the Sphere, as Kahn perhaps supposes.

But how is 'from here' or 'from here to there' possible as a description of 'from increasing Love to increasing Strife'? There are a number of ways of understanding 'here', but none of them would make 'here' equivalent to increasing Love:

(i) 'Here' and 'there' may be equivalent to 'now' and 'then' as applied respectively to the world of Strife increasing and the

world of Love increasing. Aristotle writes elsewhere: ἅμα δὲ καὶ τὸν κόσμον ὁμοίως ἔχειν φησὶν ἐπί τε τοῦ νείκους νῦν καὶ πρότερον ἐπὶ τῆς φιλίας.[1]

(ii) 'Here' and 'there' may be equivalent respectively to the 'latter' and the 'former' in the verses quoted, in which case the 'latter' would again be increasing Strife (there grow to be many from one), while the 'former' would be the world described in the preceding line, increasing Love ('in so far as there grows to be one from many').

(iii) Ἐνθένδε and ἐκεῖσε as a pair or separately frequently describe the contrast between this world and the world of Plato's Forms or the world beyond the grave.[2] Applied to Empedocles this might mean either the contrast between increasing Strife, as the world of immediate experience, and increasing Love, or the contrast between the whole world of plurality and the Sphere.

Thus in no sense can 'here' be taken to mean solely the world of increasing Love.

3. 'In so far as the elements change from becoming many to becoming one, they are at rest.'

This is manifestly impossible, for Aristotle knew that the separated elements were moving.

4. 'From the world of plurality to the world of unity and *vice versa*.' This is the interpretation attributed to Aristotle by Simplicius, *Phys.* 1125. 15–22.

This runs into one or other of two difficulties.

Either Aristotle would mean that the elements are motionless as they become one from many and as they become many from one, i.e. as they move into the Sphere and as they move away from the Sphere. But the elements cannot very well have been thought to be motionless as they moved *from* the Sphere. It was precisely then that movement began, as Aristotle knew (cf. pp. 9 and 15 above).

Or Aristotle would mean that the elements are at rest when they have become fully one and when they have become fully a

[1] *De gen. et corr.* 334a5–7, cf. pp. 172–5 above.

[2] E.g. *Phaedo* 107E, 117C, *Theaetet.* 176A and see L.S.J. for these and related words, *s.v.* There are other similar expressions, e.g. τὸ τῇδέ τις ὁρῶν κάλλος *Phaedrus* 249D, which imply the same notion of 'here' and 'there'.

plurality, i.e. fully separated. But this runs into the difficulty we have noted under 1 above. Aristotle would have to be thinking of rest at *both* termini.

5. 'From the world of plurality to the Sphere.' This would again make the Sphere alone at rest, and κύκλος might again be taken to mean the Sphere, as in 2 above. This interpretation would also give a possible sense of 'from here' or 'from here to there' as the contrast between this world of plurality and the Sphere, (iii) above.

But this interpretation runs into another difficulty. 'In so far as things become one from many and many from one, they only come to be; but in so far as they change (from becoming one and from becoming many to being one), they are at rest.' This gives ἦι δὲ τάδ' ἀλλάσσοντα no organic connection with what has preceded. In the first three lines we are told of things becoming one and becoming many. Then at ἦι δέ, without any help from the text, we have to think of quite another contrast, that between becoming one and becoming many on the one hand, and being one on the other. It is difficult, though not perhaps impossible, to believe that this is the sort of misunderstanding which Aristotle could have slipped into unawares.

6. 'From the Sphere to the world of plurality.'

As we have already noted, the elements cannot have been motionless as they moved *from* the Sphere. It was precisely then that movement began, as Aristotle knew (cf. pp. 9 and 15 above).

Thus on the assumption that Aristotle has taken ἀκίνητοι to mean literally motionless, no interpretation of his note is possible that does not involve either a time of rest under total Strife or an implausible interpretation of 'from here' or 'from here to there'. Our conclusion must be that it is unlikely that Aristotle has taken ἀκίνητοι to mean literally motionless.

SECTION 4

If Aristotle has not taken ἀκίνητοι to mean literally motionless, it might seem simplest to suppose that he has not misunderstood the lines at all.

But 'from here' or 'from here to there' does seem an odd way of describing 'from motion towards ἕν to motion towards πολλά

and vice versa', as it must do if Aristotle has understood Empedocles correctly. It would also seem an odd way to describe 'from the world of plurality to the Sphere *and* vice versa'. It seems more likely that 'from here' or 'from here to there' is meant to specify change in one direction only.

If the last two lines of the quotation are to be restricted, according to Aristotle's note, to change in one direction only, then the direction intended may at first sight be any one of the following:

if we think of the minor alternation,

2. from increasing Love to increasing Strife,

3. from increasing Strife to increasing Love;

if we think of the major alternation,

5. from the world of plurality to the Sphere,

6. from the Sphere to the world of plurality.

Earlier objections apply to all but one of these possibilities:

2. 'Here' cannot be increasing Love in any sense of 'here', as noted above.

5. 'Here' as the world of plurality and 'there' as the Sphere would demand an awkward shift of meaning in the verses themselves, as noted above.

6. There would be the same awkwardness were we to try and think in some way of the Sphere as 'here' and the world of plurality as 'there'.

This leaves 3: 'from here, the world of Strife increasing, to there, the world of Love increasing'. This makes sense of 'here' and 'there' on any of the interpretations offered above. Our earlier objection to this interpretation, that it would make the elements immobile under total Strife, will not apply if Aristotle has not taken ἀκίνητοι to mean literally motionless.

Now further, this sense of 'from here to there' fits the verses themselves with surprising ease. The first three lines describe the change towards the one and away from the one. The next two lines, on this interpretation, describe the change towards the many and away from the many. In a very real sense ἦι δὲ τάδ' ἀλλάσσοντα can thus be seen as completing the cycle: 'In so far as things become one from many and many from one, they only come-to-be. But in so far as they change *from here* (i.e. from becoming many, back to becoming one), they always are, fixed in a cycle.'

Thus although this leads to quite a different meaning for the lines from what Empedocles intended, the initial distortion of language is very slight. All we have to do is what Aristotle says we should do, understand ἐνθένδε with ἀλλάσσοντα, and so think not of the cycle in general, but of the specific change-over from 'here' the world of Strife increasing to 'there' the world of Love increasing.

We may consider at this point the difference of reading:

δεῖ γὰρ ὑπολαβεῖν λέγειν αὐτὸν 'ἦι δὲ τάδ' ἐνθένθε [τὰ] ἀλλάσσοντα' EK.

τὸ γὰρ 'ἦι δὲ τάδ' ἀλλάσσοντα' ἐνθένδε ἐκεῖσε λέγειν αὐτὸν ὑπολητπτέον FHIJ (with minor variations), Ross.

Ἐνθένδε alone is in E and K and is evidently what Simplicius had before him, *Phys.* 1125. 5. The full phrase, ἐνθένδε ἐκεῖσε, is in FHIJ. E represents one family of about equal value to FHIJ. K is an independent manuscript. Ross gives it as a rule that 'when K, or M, or V, or one of the commentators agrees with one family and there is no countervailing support on the other side, we should not hesitate to follow their testimony, except when the argument or the grammar or the style tells in the opposite direction'.[1] In this case the reading of E—the reading rejected by Ross—has the support of K and Simplicius. Textually therefore it is much the stronger.

Now ἐνθένδε on its own is sufficient for the interpretation we have suggested. Ἐκεῖσε in no way alters the sense, but is dispensable. This cannot be said of the other interpretations. From ἐνθένδε alone it would be very difficult—even prescinding from the difficulties inherent in ἐνθένδε itself—to hit on the meaning 'from increasing Love *to increasing Strife*' or 'from the world of plurality *to the Sphere*'. Thus the fact that ἐνθένδε alone is textually stronger adds support to our interpretation. The addition of ἐκεῖσε to a puzzling phrase is easily understandable. We can see the expansion at work in Simplicius, from whom indeed the alternative reading may possibly have arisen. Simplicius starts off, 1125. 5, ἦι δὲ τάδ' ἐνθένδ' ἀλλάσσοντα. A few lines later he is writing, 1125. 17–18, καθ' ὅσον δὲ ἐνθένδε ἐκεῖσε μεταβάλλοντα.

[1] *Physics*, Introduction, p. 115.

If Aristotle has misunderstood the verses in the way we have described, what cause can we find for his misunderstanding?

It seems to me that Aristotle has been influenced by his own ideas here, but not in the crude and oversimplified way suggested by Cherniss. Change into the one and out of the one involves change from movement to rest and from rest to movement. Aristotle would agree that this is 'coming-to-be' and shows a lack of 'stable life'. But change into the many and out of the many involves in Empedocles' scheme no discontinuity of movement, since there is no time of rest under total Strife in the way that there is under total Love. Aristotle would agree therefore that change into the many and out of the many is being 'fixed in a cycle'. Thus the order in which Empedocles speaks of the worlds of increasing Love and increasing Strife in the verses quoted proves to be of peculiar significance for Aristotle. From Aristotle's point of view there is discontinuity in the cycle from increasing Love to increasing Strife. There is no discontinuity in the transition 'from here', i.e. from increasing Strife to increasing Love.

So far therefore from referring the last line to rest, Aristotle appears to have referred it too exclusively to movement. Empedocles' subtle distinction of the two aspects of his cycle (aspects is justifiable here), neatly brought out in the contrast between γίγνονται and ἔασιν, Aristotle has referred to a distinction with which he was more familiar, and which to him was of peculiar importance, the distinction between change from movement to rest or rest to movement (γίγνονται) and continuous movement (ἔασιν).

SECTION 5

Not to complicate the issue I have supposed hitherto that Aristotle correctly understands ἀλλάσσοντα διαμπερὲς οὐδαμὰ λήγει as 'never fail to alternate': correctly, that is, within the limits of the argument—Empedocles meant change in either direction, Aristotle we have suggested thought of the specified change-over from becoming many to becoming one.

It is possible however that Aristotle understood the phrase in the sense of 'never cease to move'. This slight shift in the meaning of the two verbs would give a direct reference to continuous move-

ment, and may have helped to cause Aristotle's confusion. But I would not press the point, as there is no way of demonstrating it.

It might be thought that this latter sense of the words provides an opening for a more plausible version of our fifth method of misunderstanding ἀκίνητοι, thus: 'in so far as they never cease to move *from here* (i.e. after having left the one), they (return to the Sphere and so) are at rest'. But it is difficult to believe that the action of ἔασιν could have been seen in this way as subsequent to, and not contemporaneous with, the action of ἀλλάσσοντα and λήγει.[1]

[1] Zeller, ZN, p. 948 n. 2, notes another ambiguity in this last line but one of Aristotle's quotation. The line could mean either 'in so far as the elements never cease to change' or 'in so far as the elements changing never cease *sc.* to be'. Zeller prefers the second interpretation. But this is clumsy, in that it would anticipate the point of the next line. For 'never cease *sc.* to be' would mean in effect the same as αἰὲν ἔασιν. It is reasonably clear that Empedocles means 'in so far as they never fail to change-over *sc.* from becoming one to becoming many and from becoming many to becoming one'.

NOTE 2

ARISTOTLE'S CRITICISM OF THE 'DINE'

De caelo 295a29–32. Cf. pp. 15–16

ἔτι δὲ πρὸς Ἐμπεδοκλέα κἂν ἐκεῖνό τις εἴπειεν. ὅτε γὰρ τὰ στοιχεῖα διειστήκει χωρὶς ὑπὸ τοῦ νείκους, τίς αἰτία τῇι γῆι τῆς μονῆς ἦν; οὐ γὰρ δὴ καὶ τότε αἰτιάσεται τὴν δίνην.

Millerd,[1] Bignone[2] and Cherniss[3] explain that Aristotle speaks of the time of total separation, and that the *dine* could not account for the earth's immobility at that time because in Aristotle's view the elements were then at rest.[4]

The evidence of Plutarch and Eudemus and of fr. 35 that the fully separated elements were moving (pp. 25–6 and 30–6 above), and of the *De caelo* that Aristotle knew they were moving (pp. 10–14 above), invalidates this explanation.

Millerd's view is a variant on Simplicius. Simplicius too says that Aristotle refers to a time of total separation, *De caelo* 530. 12–22 (quoted in part p. 36 above), cf. 528. 3–14. But Simplicius' point is not that the elements would then have been at rest. According to Simplicius, Aristotle implies that a total separation of the elements would make any relationship between earth and a heavenly *dine* impossible. Simplicius remarks that Empedocles' reply would have been that no such state of total separation ever really existed, 530. 22–6.

Simplicius' interpretation does not ring true. It lacks the directness of Aristotle's criticisms. Simplicius' reply on behalf of Empedocles follows from his disbelief in the literal alternation of the Sphere and the many and his disregard of the alternation of increasing Love and increasing Strife. This attitude we have already illustrated (pp. 26–30 and 99–101).

Alexander, *ap.* Simpl. *De caelo* 528. 14–24, said that Aristotle

[1] (1908), pp. 53–4.
[2] P. 562 n. 3.
[3] *ACP*, pp. 175 n. 130 and 205, cf. p. 189 n. 189.
[4] Cf. pp. 4–9 and 252–3 above.

spoke of a time when the elements were 'apart from Strife' (χωρὶς ὑπό), and so not separated. Thus the reference is to the Sphere. This is perhaps an indication that Alexander did not think of the fully separated elements as at rest. For if he had thought of the fully separated elements as at rest, he could have referred διειστήκει χωρὶς ὑπὸ τοῦ νείκους to total Strife, which gives a far easier sense to the words.[1] As it is, Simplicius treats Alexander's interpretation of χωρὶς ὑπό with deserved contempt.[2]

The solution is probably to refer ὅτε τὰ στοιχεῖα διειστήκει χωρὶς ὑπὸ τοῦ νείκους not to total Love or total Strife, but to increasing Love. The pluperfect makes it quite possible to take the words to mean '*after* the elements have been separated'. For we may remember, first that total Strife was a time of short duration,[3] and secondly that increasing Love was thought of as in the past.[4] 'What *was* the cause of the earth's immobility, when Strife *had* separated the elements' could thus very naturally refer to the time that followed total Strife.

Why should Aristotle have thought that the *dine* would not continue to account for the earth's immobility under increasing Love?

The reason probably lies in Aristotle's conception of a *dine*. Aristotle thus describes the *dine* used by his predecessors, *De caelo* 295 a 10–13: ταύτην γὰρ τὴν αἰτίαν (*sc.* τὴν δίνησιν) πάντες λέγουσιν ἐκ τῶν ἐν τοῖς ὑγροῖς καὶ περὶ τὸν ἀέρα συμβαινόντων· ἐν τούτοις γὰρ ἀεὶ φέρεται τὰ μείζω καὶ τὰ βαρύτερα πρὸς τὸ μέσον τῆς δίνης. Simplicius puts this more succinctly, *De caelo* 531. 8–9: ἡ γὰρ δίνη τοῖς βαρέσιν, ὥς φασιν, αἰτία τῆς ἐπὶ τὸ μέσον φορᾶς.

Now under increasing Love, for the elements to become fully mingled, heavy things will have to move to the circumference, and light things, air and fire, to the centre.[5] Aristotle would naturally reject the idea that the same thing could have opposite effects. A *dine* moves heavy things to the centre. If heavy things are now to move outwards, a *dine* cannot be the cause.

[1] For another indication of Alexander's view, see pp. 29–30 above.
[2] 528. 24–9. We have already had one example of Alexander's ingenious disjunction of words, p. 252.
[3] See pp. 58–9 above, cf. pp. 77–9 above.
[4] *De gen. et corr.* 334a7 πρότερον ἐπὶ τῆς φιλίας, cf. pp. 174–5 above.
[5] Cf. fr. 76 and pp. 35–6 above.

It might be objected that this is not quite what Aristotle implies. His criticism seems to imply that earth *will* stay at the centre, but that a *dine* will no longer be able to govern its position.

But at root the point remains the same. Under increasing Love there is a world like ours,[1] a world where for a good part of the time the earth is at the centre, even if ultimately it will become dispersed throughout the Sphere. What is the cause of the earth's (even temporarily) remaining at the centre? Not the *dine*, for the *dine* is now working in the opposite direction.

We may follow Simplicius' example in providing what would probably have been Empedocles' defence. A certain speed of rotation is required to keep the earth at the centre.[2] We have argued in chapter 3 for a change of speed in the life of the world (pp. 46–54). Under Strife speed increases, and earth is increasingly isolated at the centre. As the *dine* slackens its speed under increasing Love, earth will gradually return to a condition where it is dispersed throughout the Sphere. It is the change of speed of the *dine* (and ultimately the whole difference between movement and rest, plurality and unity) which is responsible for these opposite effects.

It is not surprising that Aristotle will have rejected this kind of thinking (if we have interpreted it aright). The whole idea of cosmic change in reverse he sees as false.[3] Elsewhere Aristotle complains again of this very point, the earth's two movements. Strife, he says, moves earth to the centre, whereas Love in her world has to move earth away from the centre, and thus Love becomes a cause of unnatural movement.[4]

Theophrastus too has picked on the reversed worlds as a source of inconsistency. How can sensation take place under increasing Love? he asks. For ἀπορροαί will then no longer flow out of things, because things will be coming together then, and unable to separate.[5]

Very probably in most cases Empedocles did not describe how the processes of one world could be 'reversed'. There is very

[1] *De gen. et corr.* 334a5–7, cf. pp. 172–5 above.
[2] See pp. 51–2 above.
[3] *De caelo* 280a14–15, cf. *Met.* α' 994a22–b3; for the origin of the metaphor see pp. 94 and 126 above.
[4] *De gen. et corr.* 333b26–33, cf. p. 14 n. 1 above.
[5] *De sens.* 20, cf. p. 178 above.

unlikely to be any truth for example in Mugler's amusing idea that under increasing Love rain would flow upwards.[1] We know that one significant feature was not described in reverse. The cosmogony of increasing Love was omitted.[2] For the most part Empedocles' idea seems to have been simply that each world contained the same events, only in a different order. But naturally this is not enough to save him from the criticisms of Aristotle and his school.

We may note that Aristotle's criticism continues thus, 295 a32–b1:

ἄτοπον δὲ καὶ τὸ μὴ συννοεῖν ὅτι πρότερον μὲν διὰ τὴν δίνησιν ἐφέρετο τὰ μόρια τῆς γῆς πρὸς τὸ μέσον· νῦν δὲ διὰ τίν' αἰτίαν πάντα τὰ βάρος ἔχοντα φέρεται πρὸς αὐτήν; οὐ γὰρ ἡ γε δίνη πλησιάζει πρὸς ἡμᾶς.

This further criticism may not be directed specifically against Empedocles. If it is, or in so far as it is, then on our interpretation it will be a fresh criticism. For πρότερον μέν will refer to the separation of earth in Strife's cosmogony; while νῦν δέ will refer to the present world, a later stage in the period of increasing Strife.[3] It would be not untypical of Aristotle to 'mix' his criticisms of the two worlds of increasing Love and increasing Strife in this way. We have argued that he does something similar in his criticism of monsters and whole-natured creatures.[4]

[1] (1953), p. 48.
[2] *De caelo* 301a15–16 (quoted p. 10), see pp. 175–7 above.
[3] Cf. pp. 172–5 and 203–9 above.
[4] Pp. 63 and 208–9 above.

NOTE 3

THE READING ΘΕΛΥΜΝΑ

Fr. 21. 6. Cf. p. 35

ἐκ δ' αἴης προρέουσι θέλυμνά τε καὶ στερεωπά.

Simplicius' manuscripts have θελημά or θελημνά with minor variations; the Aldine edition has θέλιμνα.[1]

Θελεμνον, without an accent, is recorded in Hesychius, in the codex Marcianus, with the explanation ὅλον ἐκ ῥιζῶν. But Diogenianus' version has θέλυμνον.[2]

Θέλυμνα is given in the *Etymologicum magnum* in the entry: προθέλυμνος· πρόρριζος ἢ πυκνός·...θέλυμνα γὰρ λέγεται τὰ ἐπαλλήλως ἔχοντα τοὺς κλάδους δένδρα· διὰ τὸ θηλυμανεῖν μεταφορικῶς.[3] This is partially repeated but without θέλυμνα γάρ in a scholion on Homer.[4] The Suda has simply ἐθελυμνοί· πυκνοί.[5]

('Ε)θέλυμνα is given by most early editors, followed by Diels and Bignone.

Θελημνά in the sense of Hesychius' θέλεμνον is evidently advocated by Wilamowitz.[6] He is followed by Kranz, who prints the form in Hesychius, θελεμνά.[7]

Panzerbieter is exceptional among the earlier editors in reading ἐθελημά. He argues for the sense of 'reluctant' and so 'slow', *träge*. The same reading is printed by von Arnim.[8] Θελημά, if it is the correct reading, would more likely have the sense 'sponta-

[1] *Phys.* 33. 11 and 159. 18.

[2] Cf. θεμέλια· θέσεις, ῥίζαι and θεμελιωθέντα (Vossius, cod. θεμειλωθέντα)· ἐκ ῥιζῶν ἀρθέντα. These three entries are also given in Phavorinus, θεμέλια in the form θέμεμα.

[3] θηλυμανεῖν. coni. καθυλομανεῖν Cobet, *Mnemosyne*, n.s. 4 (1876), 280, approb. Dindorf. The entry is taken from Gaisford's edition, Oxonii, 1848. The association of θέλυμνα with trees very possibly comes from the present verse of Empedocles.

[4] *Schol. in Hom. Il.* 13. 130, vol. 4, ed. Dindorf, Oxonii, 1877. Also in Phavorinus, *s.v.* προθέλυμνα.

[5] Repeated in Phavorinus: with ἐθελυμνοί in the best edition, [Rome] 1523, and in the edition Basileae 1538, without -ν- Venetiis [1712].

[6] (1930), p. 247. [7] DK 5th edn (1934) onwards. [8] (1902), p. 23.

neously', 'of their own accord'. This is perhaps sufficiently like ἐθελημοί used with ἥσυχοι to describe the gentle labour of the inhabitants of the golden age, Hesiod, *Op.* 118–19.

Θέλυμνα which Wilamowitz finds 'ein unbekanntes und unverständliches Wort' is probably correct, a derivation from Homer's προθέλυμνος and τετραθέλυμνος to mean 'thick', 'close packed', 'dense'. This meaning would accord with Aristotle's phrase, τὴν δὲ γῆν βαρὺ καὶ σκληρόν, which seems to be a paraphrase of this verse.[1] The adaptation of Homeric words appears to have been a favourite device of Empedocles. He has probably derived:

μονίη fr. 27. 4 from Homer's καμμονίη.[2]

ζωρός fr. 35. 15 from Homer's ζωρότερος.[3]

ἀνόπαιον fr. 51 from Homer's ἀνοπαῖα.

δίαντα fr. 84. 9, slightly corrupted in the manuscripts, from Homer's εἴσαντα.

ὄψ fr. 88 from the oblique cases in Homer.[4]

θαλείοις fr. 112. 6 from the feminine form in Homer.

If θέλυμνα is correct, then the reading θελημά in Simplicius was perhaps fetched from fr. 35. 6 because θέλυμνα was not understood.[5]

Θελημνά, the alternative reading in Simplicius, is perhaps a subsequent compromise, between θέλυμνα and θελημά.

[1] *De gen. et corr.* 315 a 10–11, cf. p. 35 above.

[2] Cf. pp. 22–5 above.

[3] Cf. *C.R.* n.s. 15 (1965), 1–4.

[4] The nominative is also used by Antimachus, fr. 96 Wyss. A denial of Empedocles' authorship is implied by C. A. Lobeck, *Paralipomena grammaticae graecae* (Lipsiae, 1837), pars prior, p. 116, who compares ἄμυξ and ἄμυξις, λίψ and λεῖψις, and concludes of ὄψ, 'si auctores habet minus antiquos, speciem certe gerit simplicissimam atque antiquissimam'.

[5] For a similar explanation of a false reading, where Simplicius has what is probably the correct version, see p. 136 n. 1 above.

NOTE 4

THE STORM OF THE ELEMENTS

Cf. p. 49

INTRODUCTION

We have already noted that a storm of the elements appears to have been a feature of Strife's cosmogony. This has not been recognized hitherto. A small part of the evidence has been confused with the time of Strife's total power by von Arnim.[1] A passage in Tzetzes has been confused with Empedocles' account of the seasons by Millerd.[2] Part of the evidence is successfully collated by Bignone.[3] But other indications of the storm are confused by him with the alternation of increasing Love and increasing Strife, as will be noted below.

Our argument is necessarily indirect. Tzetzes twice specifically attributes a storm of the elements to Empedocles. Aristotle once hints at a storm of the elements when he is writing of Empedocles. In several other places a storm of the elements is mentioned without Empedocles' name, but where Empedoclean influence may be suspected. Thus the existence of the storm has to rest on the cumulative force of the passages where Empedocles is not named, but where his influence may be suspected; on the way in which these passages fill out the hint in Aristotle; and on the authority which this lends to the attribution in Tzetzes.

TZETZES

Tzetzes twice described Empedocles' storm of the elements as the truth symbolized by the judgment of Paris.[4] Twice the story is told but without Empedocles' name.[5] Once there is a plain

[1] (1902), p. 20.
[2] Tzetzes, *Exeg. in Iliad.* 42. 17 ff. Hermann; (1908), p. 74 n. 9.
[3] Pp. 351–2 and 446–9.
[4] *Alleg. Il. Prol.* 287 ff. repeated briefly 1. 229 ff. and Matranga, *Anecdota graeca* (Romae, 1850), vol. 2, pp. 365–8; *Exeg. in Il.* 41. 14 ff. Hermann.
[5] *AnteHomerica* 62–75, and briefly, *Chiliades* 5. 762–76.

account of the storm of the elements, but without the judgment of Paris and without Empedocles' name.[1]

Of the two main passages, that from the *Exegesis in Iliadem* has already been quoted at length (pp. 47–8). The passage from the *Prolegomenon* of the *Allegoriae Iliadis* is too verbose to justify quotation. There are two points in it worth noting. First, ζάλη appears both in this passage and in the later passage of the *Allegoriae Iliadis*. The same word occurs in Plutarch's account of a storm of the elements (quoted p. 49 above). Secondly, and more significantly, both the *Prolegomenon* and the *AnteHomerica* specify an intermittent obscuration of the heavens by ἀήρ. This again is a feature which occurs in Plutarch's account. We suggest below that Tzetzes may be borrowing, if only indirectly, from Plutarch's work on Empedocles (pp. 271–2).

ARISTOTLE

Aristotle writes as follows, *Phys.* 196a 19–23:

ἄτοπον οὖν εἴτε μὴ ὑπελάμβανον εἶναι (*sc.* τὴν τύχην) εἴτε οἰόμενοι παρέλειπον, καὶ ταῦτ' ἐνίοτε χρώμενοι, ὥσπερ Ἐμπεδοκλῆς οὐκ ἀεὶ τὸν ἀέρα ἀνωτάτω ἀποκρίνεσθαί φησιν, ἀλλ' ὅπως ἂν τύχηι. λέγει γοῦν ἐν τῆι κοσμοποιίαι ὡς (fr. 53)

οὕτω συνέκυρσε θέων τοτέ, πολλάκι δ' ἄλλως.

At *De gen. et corr.* 333b33–334a5 Aristotle quotes the same fragment and fr. 54

αἰθὴρ ⟨δ' αὖ⟩ μακρῆισι κατὰ χθόνα δύετο ῥίζαις

as examples of movement not controlled by Love or Strife but due to chance or nature.

The different movement of the same element in fr. 53 Bignone explains as due to alternating worlds of increasing Love and increasing Strife.[2] Bignone is perhaps following some rather obscure remarks of Philoponus, apparently to this effect, *Phys.* 261. 17–25. Philoponus however is of no particular value on Empedocles.[3] Πολλάκι δ' ἄλλως would in fact be a strangely casual way of referring to the altèrnation of different worlds. Also,

[1] *Alleg. Il.* 15. 28–36.
[2] Pp. 529–30.
[3] Cf. above, pp. 203, 207–9, 212–13.

Aristotle in the *Physics* and in the *De generatione et corruptione* has chosen the line to illustrate precisely movement that is not controlled by Love or Strife. The storm of the elements as described by Tzetzes offers the best context for frr. 53 and 54 and for Aristotle's criticism.

Ἐν τῇι κοσμοποιίαι in the *Physics* shows that Strife's cosmogony is meant. For we know that Strife's cosmogony was the only cosmogony which Empedocles described in any detail.[1] Lucretius and Plato, as we shall see, also associate a storm of the elements with the equivalent of Strife's cosmogony.

LUCRETIUS

Lucretius twice describes a storm of the elements:

1. 759–62,

> deinde inimica modis multis sunt atque ueneno
> ipsa sibi inter se; quare aut congressa peribunt
> aut ita diffugient ut tempestate coacta
> fulmina diffugere atque imbris uentosque uidemus.

5. 436–42,

> sed noua tempestas quaedam molesque coorta
> omnigenis e principiis, discordia quorum
> interualla uias conexus pondera plagas
> concursus motus turbabat proelia miscens,
> propter dissimilis formas uariasque figuras
> quod non omnia sic poterant coniuncta manere
> nec motus inter sese dare conuenientis.

The first passage from Lucretius probably refers directly to Empedocles, because Empedocles' eulogy has been recited shortly before, 714–33, and because the criticism is best taken as directed against a pluralist. Apart from a passing reference to those who have two principles, 712–13, included one feels for the sake of completeness and not, or at least not primarily, on historical grounds, the other cosmogonists who have been criticized so far are monists, 635–711. If Empedocles is intended here, then *aut*... *aut*...will probably represent alternate worlds of increasing Love and increasing Strife (mentioned, we may note, in the right order,

[1] Arist. *De caelo* 301 a 15–16, cf. pp. 175–7 above.

cf. pp. 174–5 above); and in that case the storm will again be part of Strife's cosmogony, as we have suggested it is in Aristotle. The association of perishing and mixing in *congressa peribunt* may also be genuinely Empedoclean (see pp. 314–16, cf. 320–1 below).

The second passage is preceded by a description of the pre-cosmic state borrowed from Empedocles' descriptions of the Sphere and of total Strife (see pp. 153–4 above). It is followed by a separation of the elements which, we shall argue later (note 7, pp. 287 ff.), is peculiarly Empedoclean, in that it describes in effect an initial separation of fire mixed with air from earth mixed with water, followed by a separation of these primary mixtures into their components.

PLATO

The myth of Plato's *Politicus* offers the following description of the world when it is abandoned by the gods, 273 A–B:

ὁ δὲ (*sc.* κόσμος) μεταστρεφόμενος καὶ συμβάλλων, ἀρχῆς τε καὶ τελευτῆς ἐναντίαν ὁρμὴν ὁρμηθείς, σεισμὸν πολὺν ἐν ἑαυτῷ ποιῶν ἄλλην αὖ φθορὰν ζώιων παντοίων ἀπηργάσατο. μετὰ δὲ ταῦτα προελθόντος ἱκανοῦ χρόνου, θορύβων τε καὶ ταραχῆς ἤδη παυόμενος καὶ τῶν σεισμῶν γαλήνης ἐπιλαβόμενος εἴς τε τὸν εἰωθότα δρόμον τὸν ἑαυτοῦ κατακοσμούμενος ἤιει, ἐπιμέλειαν καὶ κράτος ἔχων αὐτὸς τῶν ἐν αὑτῶι τε καὶ ἑαυτοῦ, τὴν τοῦ δημιουργοῦ καὶ πατρὸς ἀπομνημονεύων διδαχὴν εἰς δύναμιν.

The alternate worlds of the *Politicus* and apparently a number of the details of the myth are taken from Empedocles (see pp. 94–8, cf. 122–3 above). In this passage the θόρυβοι, the ταραχή, the σεισμοί occur at the beginning of the equivalent of increasing Strife. This detail probably represents the storm of the elements.

Possibly there is a reminiscence of the storm of the elements in the erratic wanderings of the newly formed souls and in the wild blustering of the elements in the *Timaeus*, 43 A–44 C. But the description there is perhaps too closely bound to Plato's own theories to be necessarily Empedoclean.

PLUTARCH

Plutarch, *De esu carn.* 993 C–E, describes a storm early in the world's history, with raging of the elements and intermittent obscuration of the heavens, as in Tzetzes' account. The passage

has been quoted above (p. 49). In particular Plutarch mentions an irregular movement of the sun. This, as we have already noted (*ibid.*), is an unusual feature, which it is probably safe to equate with the slow and irregular movement of Empedocles' sun recorded in Aetius and Tzetzes.

We may note that the absence of Empedocles' name in Plutarch guarantees that Tzetzes is not simply borrowing from our passage in Plutarch; as is also shown by his knowing that the sun's irregular movement is a slow movement, a feature confirmed from Aetius.[1]

We may observe that Eusebius records an allegory similar to that in Tzetzes from Plutarch's *De daedalis Plataeensibus*.[2] Zeus and Hera are embodiments of fire and water. Their quarrelling represents the battling of these elements, leading to drought or flood. Their reconciliation brings fair weather. Possibly Plutarch, who had a special interest in Empedocles, had worked out such a scheme for Empedocles, and is, if only indirectly, the source for Tzetzes' information.[3]

THE DIODORAN COSMOGONIES

A faint trace of the storm of the elements may also be found in Diodorus' cosmogony, where the air is said κινήσεως τυχεῖν συνεχοῦς, 1. 7. 1. This implies an earlier uneven or disordered movement. The two cosmogonies in Tzetzes have each a similar detail:

τοῦ ἀέρος κινήσεως συνεχοῦς τετευχότος, *Exeg. in Il.* 56. 4 Hermann.

καὶ τὸν ἀέρα συστῆναι, *Schol. in Hesiod.* vol. 3, p. 58 Gaisford.

We have already noted other Empedoclean, or possibly Empedoclean, features in this group of cosmogonies.[4]

The account in Hermippus, *De astrol.* 2. 2–4, the other member of this group of cosmogonies, speaks not of uneven or disordered movement of the air simply, but of disordered movement in general: τάξιν ἀντεισάγει (*sc.* ὁ τὸ πᾶν τοῦτο τεκτηνάμενος) τὴν

[1] 5. 18. 1 (DK 31A75) quoted p. 47 above.
[2] *Praep. evang.* 3. 1. 6–7. See Bernadakis, vol. 7, pp. 43–8.
[3] For Plutarch's interest in Empedocles see pp. 32–6 above.
[4] Pp. 192 n. 1, 215. See also pp. 294–6 below.

ἄκριτον καὶ ἀνώμαλον ἐξελάσας φοράν. The wider notion of disorder and the direct intervention of the deity probably indicate the influence of Plato's *Timaeus*, 52D–53B. Here therefore the connection with Empedocles will be only indirect, and the connection will in any case be not primarily with the storm of the elements in Strife's cosmogony but with the time of total separation.[1]

[1] Cf. p. 14 above.

NOTE 5

THE INTERPRETATION OF FR. 30. 1

Cf. p. 81 n. 1

αὐτὰρ ἐπεὶ μέγα Νεῖκος ἐνἰμμελέεσσιν ἐθρέφθη
ἐς τιμάς τ' ἀνόρουσε τελειομένοιο χρόνοιο,
ὅς σφιν ἀμοιβαῖος πλατέος παρ' ἐλήλαται ὅρκου...

It has invariably been supposed that the limbs in fr. 30. 1 are the limbs of the Sphere.[1] But Karsten's references to the limbs of the Sphere in fr. 31 (and, we may add, in fr. 27a) and to mortal limbs in fr. 35. 11 need have no relevance for the limbs in the present fragment. It seems more likely that the limbs are in fact the limbs of Strife.

Apart from seeming, to my ear at least, the more obvious sense of the Greek, the advantage of the limbs belonging to Strife is that this avoids the awkwardness of supposing that Strife is inside the Sphere for some time before making its presence felt. Freeman presents this awkwardness in a needlessly extreme form: 'These two fragments (30 and 31) present a difficulty: we have been told that Hate was utterly excluded from the limbs of the Sphere; now, it seems, Hate has been growing within *all the time*...' (my italics).[2] The same awkwardness appears in a milder form in Raven's account of Strife, 'flowing back into the Sphere until it attains a sufficient proportion to assert itself'.[3] The difficulty vanishes if we understand the limbs as the limbs of Hate. Hate 'grows great in its limbs' *before* it penetrates the Sphere. Movement and separation, we may suppose, follow more or less immediately upon Strife's penetrating the Sphere.

Probably the expression ἐνἰμμελέεσσιν is to some extent a metaphorical one, in that no lack of homogeneity within Strife

[1] By all editors since Karsten, as well as by Bergk (1842), col. 1004, reprinted (1886), vol. 2, p. 49; by Zeller, ZN, pp. 976–7; implicitly by Burnet, *EGP*, p. 211; by Cornford (1912), pp. 236; and by Lieberg, 'Il ruolo del piacere nella filosofia di Empedocle', *Sophia*, 26 (1958), 223.

[2] (1946), pp. 185–6.

[3] (1957), p. 331.

need be implied. Similarly μέγα ἐθρέφθη – the common opinion is right in taking the words together, against Panzerbieter – need not perhaps imply any literal increasing of volume. Thus the whole phrase 'grow great in its limbs' is most probably a vivid and pictorial expression for an increase of Strife's power.

Sturz questioned whether σφιν in line 3 referred to Love and Strife, or to τιμάς in the preceding line.[1] He decided that it referred to Love and Strife, and this has since been the usual assumption. Sturz's interpretation is perhaps natural enough, if we suppose that the first line speaks of the limbs of the Sphere, and so, by a loose implication, describes both Love and Strife. But if, as on our interpretation, the limbs are the limbs of Strife, so that there is no mention of Love in line 1, then σφιν is more likely to refer to τιμάς in line 2.

Fr. 30 was evidently followed very closely by fr. 31, which describes the effect of Strife's entering the Sphere:

πάντα γὰρ ἐξείης πελεμίζετο γυῖα θεοῖο.

Minar takes γυῖα θεοῖο as meaning that the Sphere is not 'completely homogenized'.[2] This is improbable. The phrase may perhaps to some extent be metaphorical. More probably, the point is that the Sphere's limbs now for the first time appear. They are 'shaken out' as it were, and manifest themselves as the visible elements of this world.

[1] Cf. p. 82 n. 1 above.
[2] (1963), p. 135.

NOTE 6

SIMPLICIUS' QUOTATIONS OF EMPEDOCLES

Cf. pp. 22 and 109–10

We have argued above that Simplicius had access probably to the whole, and certainly to a large part, of the physical poem (pp. 150–1). We also noted that Simplicius was our most prolific single source of verbatim quotations from Empedocles (p. 150). The present note seeks to determine the quality of Simplicius' exemplar. For twice, at an important point in our argument, we have depended on a reading in Simplicius. We adopted περιγηθέι in fr. 27. 4 from Simplicius' manuscripts, as against περιηγέι recorded in other ancient writers and favoured by most modern editors (pp. 20–5). We argued against Wilamowitz's explanation of γένηται in fr. 35. 4 in Simplicius as the result of a gloss γεγένηται for the archaic γέγακε (pp. 109–10). Wilamowitz also explains λαμπρόν fr. 21. 3 in Simplicius as a gloss for λευκόν in Aristotle.[1] How plausible is it to explain a reading in Simplicius as a gloss? How reliable in general is Simplicius' text of Empedocles?

In this note we list, first, unusual or archaic words and forms in Simplicius' quotations of Empedocles. This list gives some initial indication of the high quality of Simplicius' text of Empedocles.

Then we instance readings that are false or possibly false but that make intelligible Greek: these we divide first into readings that can be seen to have been present in Simplicius' own exemplar; secondly readings that can be seen to be subsequent to Simplicius; and thirdly readings that have apparently arisen from Simplicius' own handling of his exemplar. Errors that make no sense are presumably accidental errors, which may affect the transmission of a text at any time. But errors that make intelligible Greek may indicate more or less deliberate tampering with the text. It is

[1] References p. 285 below. For a reading in Simplicius, ἅπλετον in fr. 17. 18, which affects our argument only tangentially, see p. 136 n. 1 above and p. 278 below.

important to try to localize any such interference: for this will properly affect our attitude to a wide range of readings in Simplicius' quotations from Empedocles.

In the light of our conclusions from this survey we shall return to the three disputed readings listed in the first paragraph of this note.

ARCHAISMS, ETC., IN SIMPLICIUS' EXEMPLAR

Simplicius' exemplar of Empedocles' physical poem preserved numerous unusual and archaic words and forms:

1. φορεύμενα fr. 17. 8.[1]
2. Probably μάθη fr. 17. 14.[2]
3. περὶῤῥηγμῖνι fr. 20. 5.[3]
4. δέρκευ fr. 21. 1.[4]
5. Nominative plurals in -τε fr. 23. 2–6.[5]
6. γαίων fr. 27. 4.[6]
7. ἐνὶμμελέεσσιν fr. 30. 1.[7]
8. γένοντο fr. 96. 3.[8]
9. Possibly γέντο fr. 98. 5.[9]

ERRORS IN SIMPLICIUS' EXEMPLAR

The following readings that are false or possibly false but intelligible were probably already present in Simplicius' exemplar:[10]

[1] Quoted *Phys.* 25. 30 and often elsewhere.

[2] This appears under the corruptions μέθη and μέθυ *Phys.* 158. 13, restored by Bergk, *Acta Societatis Graecae*, vol. 1 (Lipsiae, 1836), pp. 203–4, reprinted (1886), vol. 2, p. 4, repeated in (1837), col. 452; cf. Hesychius, μάθας· μαθήσεως. Other ancient authorities have μάθησις: Stob. *Ecl.* 2. 31. 6; Clem. *Strom.* 5. 85. 3.

[3] Quoted *Phys.* 1124. 16, ms. A.

[4] Quoted *Phys.* 159. 13.

[5] Quoted *Phys.* 160. 2–6, in some manuscripts.

[6] Quoted *De caelo* 591. 5: αἰών in *Phys.* 1184. 1. γαίων and γεαίων in Antoninus 12. 3. Other ancient sources have χαίρων: Proclus, *in Tim.* 2. 69. 22 (with the variant χαῖρον); Stob. *Ecl.* 1. 15. 2b; Achilles, *Isag.* 6, p. 37. 13 Maass; Anon. 1 *in Aratum* 6, p. 97. 26 Maass.

[7] Quoted *Phys.* 1184. 14, ms. A.

[8] Quoted *Phys.* 300. 23.

[9] This appears under various corruptions *Phys.* 32. 10.

[10] I have omitted the persistent absence of one or more probably two verses from Simplicius' quotations of fr. 17. 8–10: *Phys.* 158. 1; *De caelo* 141. 1, 293. 25. The missing lines, of which the first is clearly demanded by the

1. θρυφθεῖσα διέπτη (mss δρεπτή) fr. 17. 5[1] for θρεφθεῖσα διέπτη, restored by Panzerbieter. The error has arisen, or at least has been perpetuated, not for any strictly linguistic difficulty, but partly because Empedocles' alternate worlds, which are described in these verses, have been lost sight of in the Platonizing interpretation of the cycle; and partly because it was commonly supposed that Empedocles had made a simple correlation between death and separation.[2] Since Simplicius shares this view of Empedocles,[3] and since the manuscripts are unanimous, it is likely that this error was already present in Simplicius' exemplar.

2. ἄπλετον ὕψος in fr. 17. 18, on which the manuscripts are twice unanimous,[4] and which is supported by Clement, we have argued is more probably correct as against ἤπιον ὕψος in Plutarch, Sextus and Athenagoras.[5]

3. ἀτάλαντον ἕκαστον fr. 17. 19[6] for ἀτάλαντον ἀπάντῃι quoted by several other authors and required by the sense of the piece.[7] This error is shown to derive from Simplicius' exemplar because Simplicius quotes the verse as proof that Empedocles ποτὲ δὲ τοῖς τέτταρσιν ὡς ἰσόστοιχα συντάττει καὶ ταῦτα (i.e. Love and Strife), *Phys.* 25. 31. Simplicius has evidently understood the phrase to mean that Hate and the four elements are '*each* equal'. We have suggested above that the error may have arisen because the spatial connotations of ἀτάλαντον ἀπάντῃι were not appreciated.[8]

4. ὀρειμελέεσσιν fr. 20. 7,[9] probably for ὀρειλεχέεσσιν restored

sense of the piece, may be restored from the parallel verses in fr. 26, see pp. 323–4 below. The second line is difficult to interpret, see pp. 320–3 below, and it might be thought that it had been omitted for that reason. But the opposite is true of the preceding line, whose absence makes fr. 17 more difficult to understand: so that it seems better to treat both omissions as accidental.

[1] Quoted *Phys.* 158. 5.
[2] See pp. 165–6 above.
[3] References p. 165 n. 4 above.
[4] *Phys.* 26. 2, 158. 17.
[5] See p. 136 n. 1.
[6] Quoted *Phys.* 26. 3 and 158. 18.
[7] See pp. 131–40 above.
[8] P. 137. Simplicius' use of ἰσόστοιχος is given by L.S.J. as 'occupying a corresponding place, of terms in parallel series'. But the word seems to carry in addition the connotation of 'an *equal* and corresponding place', see *Phys.* 354. 9–10, *De caelo* 196. 17–19 (this passage is given a wrong reference by L.S.J.), and several places in the *Categories*, 83. 24, 277. 9, 424. 27 and 426. 8. This connotation has been supplied in the passage under discussion.
[9] Quoted *Phys.* 1124. 18, with a slight corruption in one manuscript.

from fr. 127.[1] The manuscripts are unanimous and the reading may therefore go back to Simplicius. 'Ορειμελέεσσιν hardly makes sense and is probably simply an error of transcription. It is in no way an easier reading than ὀρειλεχέεσσιν: it does not therefore compare to a gloss.

5. τόγον understood perhaps at τό γ' ὄν fr. 21. 14[2] for τόσον, restored by Diels,[3] and νεικεογεννέστησιν fr. 22. 9[4] for νείκεος ἐννεσίησιν, restored by Panzerbieter.[5] That the latter error dates to Simplicius' exemplar is shown by the repetition of νεικεογενέσι (*v.l.* -γεννέσι) evidently understood as 'Strife's offspring' in Simplicius' commentary on the fragment.[6] Though both errors have been perpetuated because they made some kind of intelligible Greek, they have probably both arisen, as Diels suggests, simply from the corruption of C to Γ. Since the cause of the error is the same in both cases, it is likely that τόγον as well as νεικεογεννέστησιν dates from Simplicius' exemplar.

6. ὅτι fr. 22. 9[7] should perhaps be rejected in favour of ὅτε so as to give a reference to alternate worlds, so Mugler.[8] ὅτι, if it is a correction, will again have arisen, or at least have been perpetuated, because the alternate worlds were obscured by the Platonizing interpretation of the cycle.

7. τὰς . . .μοιράων mss. D and E, and τὰ . . .μερέων ms. F, fr. 96. 2,[9] are corruptions for the unusual dual τὼ . . .μερέων, restored by Diels from τῶν . . .μερέων in most manuscripts of Aristotle.[10] It looks as though τὼ . . .μερέων has been glossed as τὰ . . .μερέων, and that this has been made to scan as τὰς . . .μοιράων, a variant which also appears in Aristotle's manuscript W. This instance is exceptional, in that it is the one case where Simplicius' manuscripts offer a gloss with no trace of the correct reading, so that *prima facie* it is possible that the unusual τώ was not present in Simplicius' exemplar. But the list we have given of archaisms and the like

[1] J. Schneider, *Griechisch-Deutsches Wörterbuch* (3rd edn Leipzig, 1819), *s.v.*
[2] Quoted *Phys.* 159. 26.
[3] 'Studia Empedoclea', *Hermes*, 15 (1880), 163.
[4] Quoted *Phys.* 161. 7. [5] *Z.A.W.* (1845), no. 111, coll. 886–7.
[6] *Phys.* 161. 12.
[7] This is given in the only two manuscripts at *Phys.* 161. 7.
[8] (1951), pp. 61–5: cf. p. 311 below. [9] Quoted *Phys.* 300. 22.
[10] Arist. *De anima* 410a 5; Diels (1880), pp. 166–7.

in Simplicius' exemplar may cast some doubt on this: a doubt which is reinforced by the fact that the evidence of Simplicius' best manuscript, A, is not present on this occasion.[1]

ERRORS LATER THAN SIMPLICIUS

The following readings that are false or possibly false but intelligible can probably be dated later than Simplicius:

1. θελημά fr. 21. 6 is given in all the manuscripts, but not in the Aldine edition, in one place in the *Physics*.[2] We have suggested that it may be a deliberate rewriting of Empedocles' own derivation from Homer of θέλυμνα, which was perhaps not understood (see pp. 266–7 above). But another time the line is quoted E and the second hand in D have θελημνά.[3] This evidently reflects the true reading, which suggests that the correction, if such it was, to θελημά arose later than Simplicius.

2. στερέωμα in the same line is given for στερεωπά by all the manuscripts the first time the verse is quoted.[4] It is hardly likely to be an attempt at a gloss. Most likely it is simply an error in transcription. It is in any case later than Simplicius, since the correct reading is given the other time the verse is quoted.[5]

3. ἄλλων ἔθνεα κηρῶν fr. 26. 4[6] is given for θηρῶν or possibly θνητῶν, restored by Sturz.[7] The error has fairly certainly arisen later than Simplicius: for Simplicius quotes the line as evidence that Empedocles σαφῶς τὴν ἀμφοῖν ἐν πᾶσι μῖξιν τοῦ τε νείκους καὶ τῆς φιλίας ἐξέφηνεν, *Phys.* 33. 6–7. What Simplicius probably had in mind for πᾶσι is shown by his insistence, in contexts similar to the one in which he quotes fr. 26, that Love as well as Strife is responsible for the production of man *and beast*:

καὶ τὰ θηρία, *Phys.* 160. 14.

καὶ θηρίων, *Phys.* 1124. 11.

[1] It may be that τάς in D and E is derived from τάς in Aristotle's manuscript W. If this were so, then we might again fairly conclude that τάς in being drawn from Aristotle is later than Simplicius, since Simplicius did not depend on Aristotle for his knowledge of Empedocles, cf. pp. 150–1 above.

[2] *Phys.* 159. 18. [3] *Phys.* 33. 11. [4] *Phys.* 33. 11.

[5] *Phys.* 159. 18. [6] Quoted *Phys.* 33. 22.

[7] For θνητῶν cf. fr. 35. 7 and 16. For θηρῶν cf. Lucretius, 3. 753, *homines... fera saecla ferarum.*

Cf. τὰ θνητὰ καὶ ζῶια καὶ φυτά, *De caelo* 529. 20.[1]
This suggests that Simplicius read the end of the line with θηρῶν.[2]
The corruption is evidently caused by reminiscence of a line from the *Katharmoi*.[3]

SIMPLICIUS' OWN STYLE OF QUOTATION

Simplicius quotes pieces of considerable length from the physical poem because, as he tells us, Parmenides' poem and other works of the early period were in his day no longer familiar, *Phys.* 39. 20–1: ἀλλὰ ταῦτα μὲν διὰ τὴν πολλὴν νῦν ἄγνοιαν τῶν παλαιῶν γραμμάτων μηκύνειν ἀναγκάζομαι. Considering the extent of his quotations, the occasions when an error can be traced to Simplicius himself are rare:

1. Fr. 17. 8 is quoted three times with ἕκαστα,[4] and three times with πάντα or ἅπαντα.[5] On each occasion the manuscripts are unanimous. The reading may therefore go back to Simplicius. Ἕκαστα is more likely correct, since it is the reading in several other sources.[6]

2. Fr. 17. 21, when it is quoted in its context, is given correctly as, τὴν σὺ νόωι δέρκευ, μηδ' ὄμμασιν ἧσο τεθηπώς.[7] But when Simplicius quotes the line on its own, it becomes ἀλλὰ νόωι δέρκευ etc.[8] This is probably because on this occasion Love is introduced as an example of a principle, γνωριμώτερον . . .κατὰ

[1] For the context of these references see p. 100 n. 9 above.
[2] In the passage in question, *Phys.* 33. 6–7, Simplicius quotes two fragments, frr. 21 and 26. In fr. 21 Simplicius' πᾶσι is justified by line 9, ἐκ τούτων γὰρ πάνθ' ὅσα τ' ἦν etc., as well as by mention of θῆρες etc. in lines 10–12. But it is reasonable to expect that this is not all: that πᾶσι will be justified by something similar, and probably by a specific mention of beasts, in fr. 26.
[3] Fr. 121. 2. Comparable erudition on the part of a scribe later than Simplicius perhaps appears in the version of fr. 17. 22 given by one manuscript at *Phys.* 158. 21, ἥτις (i.e. Love) καὶ φυτοῖσι [*sic*] νομίζεται ἔμφυτος ἄρθροις. The correct reading is θνητοῖσι. Φυτοῖσι may have arisen initially as a mere misreading. But its perpetuation, if not its inception, may reflect awareness of Empedocles' belief that plants are sentient and feel pleasure and pain, [Arist.] *De plant.* 5. 9–11 and 6. 17–18 Meyer.
[4] *Phys.* 1318. 26; *De caelo* 293. 26, 530. 15.
[5] *Phys.* 158. 8, 25. 30; *De caelo* 141. 2.
[6] Stob. *Ecl.* 1. 10. 11b; Diog. Laert. 8. 76; Ps.-Plut. *Vita Hom.* 99.
[7] *Phys.* 158. 20. (The manuscripts also record σὺν νῶι, a copyist's error.)
[8] *Phys.* 188. 26.

τὸν λόγον, ἀλλ' οὐχὶ κατὰ τὴν αἴσθησιν. The thought in Simplicius' mind has evidently become, 'Don't look for Love with the senses, *but* see her with the mind'.[1]

3. In quoting fr. 57 in the *Categories* Simplicius has possibly written ἀναύχενοι for ἀναύχενες, since the manuscripts are unanimous.[2] The line is quoted correctly in the *De caelo*.[3] Empedocles is not quoted again in the *Categories*. Possibly Simplicius is using an inferior exemplar or quoting from memory.

4. In fr. 59. 2 Simplicius has again (as in fr. 17. 8, no. 1 above) written ἅπαντα for ἕκαστα. Ἕκαστα is probably the correct reading, as it makes better sense. The verse is quoted correctly with ἕκαστα in the *De caelo*,[4] and with ἅπαντα in a shorter quotation in two places in the *Physics*.[5] We have argued that the same fragment is quoted on each occasion (p. 137 n. 4). Since the manuscripts are unanimous on each occasion, the variation may have arisen from Simplicius.

A striking instance of Simplicius' carefulness in quotation is seen in his recording of frr. 17. 7–13 and 26. 5–12. This is a set of identical verses. As we have already remarked, one or more probably two verses were missing from Simplicius' exemplar of fr. 17.[6] Apart from this lacuna, the only variations between the two sequences lay in the phrases, εἰς ἓν ἅπαντα or εἰς ἕνα κόσμον and διαλλάσσοντα or τάδ' ἀλλάσσοντα.

The object of the exercise which follows is to see how attentive Simplicius shows himself to these minutiae.

1. When Simplicius quotes fr. 17 in full, *Phys.* 158. 1, he records εἰς ἓν ἅπαντα and διαλλάσσοντα. When he quotes fr. 26 in full, *Phys.* 33. 19, he records εἰς ἕνα κόσμον and τάδ' ἀλλάσσοντα. We may assume that these are the correct readings.

2. On two occasions, *De caelo* 141. 1 and 293. 25, Simplicius quotes this sequence of verses without any wider context. There are one or two verses missing as in Simplicius' exemplar of fr. 17. Simplicius again records εἰς ἓν ἅπαντα with διαλλάσσοντα.

[1] Grammatically the omission of the pronoun has been made possible by mention of φιλία in the words immediately preceding the quotation: περὶ φιλίας λέγων.

[2] *Cat.* 337. 2.

[3] *De caelo* 586. 12.

[4] *De caelo* 587. 22.

[5] *Phys.* 327. 20, 331. 2.

[6] Mentioned p. 277 n. 10 above. Argued pp. 323–4 below.

3. On one other occasion, *Phys.* 25. 29, Simplicius quotes the first two lines only of the sequence. He writes εἰς ἓν ἅπαντα. Immediately afterwards he quotes other lines from fr. 17. It is clear therefore that the first two lines were taken from that fragment.

4. On yet two other occasions, *Phys.* 160. 20 and 1125. 1, Simplicius quotes the last two lines only of the sequence. He writes τάδ' ἀλλάσσοντα. Each time it is clear that Simplicius is quoting from fr. 26. For on the first occasion he has just quoted lines 1 and 2 of fr. 26. On the second occasion he is commenting closely on Aristotle's quotation of that fragment.

5. Finally, Simplicius twice quotes the first two lines of the sequence and writes εἰς ἓν ἅπαντα, *Phys.* 1318. 25, *De caelo* 530. 14. But on these occasions there is no other evidence to show which fragment the lines are taken from.

Now it would have been very easy to confuse the two pairs of variations. We could easily have found εἰς ἕνα κόσμον with διαλλάσσοντα or τάδ' ἀλλάσσοντα with εἰς ἓν ἅπαντα. We could easily have found διαλλάσσοντα when there were other indications that Simplicius was quoting from fr. 26, or τάδ' ἀλλάσσοντα when he was quoting from fr. 17. The fact that on seven occasions Simplicius is consistent is evidence that he is not quoting entirely from memory, as Plutarch and Aristotle mostly appear to be doing, but that even perhaps in his shorter quotations Simplicius is relying on a written text, which he copies with considerable care.

CONCLUSIONS

We conclude therefore that Simplicius' exemplar of Empedocles was generally of a high quality and in particular that there is no clear instance of a strictly linguistic gloss which can confidently be dated to Simplicius' own exemplar. Glosses, or more broadly the extrusion of an unusual word for something more familiar, do occur in the subsequent transmission of Simplicius' text: θελημά for θέλυμνα, στερέωμα for στερεωπά, and so too probably τά and τάς for τώ. But faults already present in Simplicius' exemplar seem to be either the result of a misreading, τόγον for τόσον, νεικεογεννέστητισιν for νείκεος ἐννεσίῃσιν, and so probably

ὀρειμελέεσσιν for ὀρειλεχέεσσιν; or they have been encouraged by a misunderstanding of the sense of the fragment, θρυφθεῖσα διέπτη for θρεφθεῖσα διέπτη, ἀτάλαντον ἕκαστον for ἀτάλαντον ἅπάντῃι, and possibly ὅτι for ὅτε. Simplicius himself shows great care in copying his quotations. On occasion he makes a trivial slip, ἅπαντα for ἕκαστα, or slightly alters the form of a quotation because of the context in which he is quoting it, ἀλλὰ νόωι for τὴν σὺ νόωι.

APPLICATIONS

In the light of these conclusions we turn to the three disputed readings cited at the beginning of this note.

1. It is now at once obvious that on textual grounds there is no justification for explaining γένηται fr. 35. 4, on which the manuscripts are twice unanimous,[1] as the result of a gloss in order to emend to γεγάκει or γέγακε.

2. Περιγηθέι fr. 27. 4 is quoted by Simplicius in the *Physics*, and, with a slight corruption in one manuscript, in his *De caelo*.[2] Περιηγέι is recorded in Proclus, Achilles and the anonymous commentator on Aratus, as cited for the reading γαίων earlier in this note (p. 277 n. 6). Περιηγέι is also recorded by the second hand of E in the *De caelo*. But this is identified by Heiberg as Bessario, who has probably made the correction from an external source.[3] The manuscripts with this exception are unanimous, and probably therefore the reading goes back to Simplicius' exemplar. There also occur the variants περιηθεῖ or περιήθει in Marcus Aurelius,[4] and περιτεθῆ or περιτείθη (θη *in ras.*) in Stobaeus.[5]

Περιηγέι is the reading preferred by nearly all modern scholars.[6] But περιγηθέι is very probably the correct reading. It is virtually the unanimous reading of the manuscripts in Simplicius. It receives support from the variants in Aurelius and Stobaeus. And it is by far the more unusual word, occurring elsewhere only in Apollonius Rhodius.[7] Karsten writes 'sed περιγηθεῖ appositum

[1] *Phys.* 32. 14 and *De caelo* 529. 4.
[2] *Phys.* 1184. 1 and *De caelo* 591. 5.
[3] Preface to the Berlin edition of Simplicius' *De caelo*, p. viii.
[4] 12. 3. [5] 1. 15. 2b.
[6] Peyron is an exception (1810), p. 51. Farquharson gives περιγηθέι for Antoninus, but not for Empedocles in his *testimonia*.
[7] 3. 814 and 4. 888.

verbo γαίων, nisi ineptum, est certe supervacaneum, quod alienum ab Empedoclis more'.[1] But the repetition of idea and sound in -γηθέι and γαίων has considerable *prima facie* plausibility as a deliberate stylistic device. We may compare:

(i) λόγου λόγον fr. 35. 2, and δαίμονι δαίμων fr. 59. 1.

(ii) κορυφὰς ἑτέρας ἑτέρῃσι προσάπτων fr. 24.

(iii) Probably ἀνδρωδέστεροι ἄνδρες fr. 67. 2.[2]

(iv) And possibly μελέτας ⟨μέλε τοι⟩ fr. 131. 2, the supplement by Diels.

3. Wilamowitz[3] again explains as a gloss Simplicius' λαμπρόν in fr. 21. 3[4] for 'das schöne und alte' λευκόν in Aristotle. Wilamowitz is followed by Kranz.[5] But Simplicius is not alone. He has with him Plutarch[6] and Galen.[7] The fault probably lies with Aristotle, who twice uses λευκός in the immediate context of this quotation,[8] and who himself uses λευκός, with θερμός as in his quotation of Empedocles, to describe the sun[9] and for radiance in general.[10]

Aristotle is frequently inaccurate in his shorter quotations from Empedocles, probably because he is quoting from memory:

(i) φύσις οὐδενὸς ἔστιν ἐόντων or simply φύσις οὐδενὸς ἔστιν for φύσις οὐδενὸς ἔστιν ἁπάντων θνητῶν, fr. 8.[11] The correct version is partly from Aetius[12] and partly from Plutarch.[13]

[1] P. 183.

[2] This reading is accepted by Diels, *S.B.B.* (1898), p. 399 n. 2, and *Poet. phil. fragm.*, *ad loc.*, and by Bignone, as against Karsten's emendation ἀδρομελέστεροι ἄνδρες which is advocated by Deichgräber, *Gnomon*, 6 (1930), 375, on the basis of an arabic version, 'stärker an Gliedern'. Deichgräber is followed by Kranz, DK *ad loc.*, and by Buhl (1956), p. 49 n. 2. It should be noted however that the word ἀδρομελής does not occur in any known text.

[3] (1930), p. 247.

[4] Quoted by Simplicius, *Phys.* 33. 8 and 159. 15, and by Aristotle, *De gen. et corr.* 314b20.

[5] DK 5th edn (1934) onwards.

[6] *De prim. frig.* 949F.

[7] *De simpl. medic. temperam. ac facult.* liber 2, vol. 11, p. 461 Kühn.

[8] *De gen. et corr.* 314 b19 and 24, cf. 315a10. Aristotle's form of the quotation is paraphrased by Philoponus, *De gen. et corr.* 17. 9–10. For a defence of the order of verses in Simplicius' quotation see p. 226 n. 1 above.

[9] With θερμός, *Meteor.* 341a35–6. Without θερμός, *De sensu* 440a10–11.

[10] *Phys.* 217b6–7.

[11] Quoted *Met.* 1015a1 and *De gen. et corr.* 314b7–8.

[12] 1. 30. 1.

[13] *Adv. Col.* 1111F.

(ii) ἐξ ὧν πάνθ' ὅσα τ' ἦν ὅσα τ' ἔσθ' ὅσα τ' ἔσται ὀπίσσω for ἐκ τούτων γὰρ πάνθ' ὅσα τ' ἦν ὅσα τ' ἔστι καὶ ἔσται, fr. 21. 9.[1] The correct version is given with incidental corruptions in Simplicius,[2] and with more serious corruptions in Clement.[3]

(iii) διὰ πολλῶν δὴ γλώσσας[4] ῥηθέντα ματαίως fr. 39. 2,[5] probably wrongly for ἐλθόντα ματαίως, the version given by Clement.[6]

(iv) ἦι πολλῶν μὲν κόρσαι for ἦι πολλαὶ μὲν κόρσαι, fr. 57. 1.[7] The correct version is given in the *De generatione animalium*, as well as in Simplicius, when Simplicius is shown to be not simply copying Aristotle because he offers a more extensive quotation than Aristotle does.[8]

(v) οὐλοφυές for οὐλοφυεῖς, fr. 62. 4.[9] The correct version is from Simplicius, *Phys.* 381. 34.[10]

(vi) Probably στοργῆι δὲ στοργήν for στοργὴν δὲ στοργῆι, fr. 109. 3.[11] The correct version is determined by the sequence of the fragment and is found in Sextus.[12]

These examples of misquotation on Aristotle's part confirm our choice of Simplicius' λαμπρός, with the support of Plutarch and Galen, against Aristotle.

[1] Quoted *Met.* 1000a29–30. [2] *Phys.* 33. 14 and 159. 21.

[3] *Strom.* 6. 17. 4. Aristotle's version is copied in *De mundo* 399b26.

[4] Wilamowitz (1930), p. 249. Mss. γλώσσης or γλώσση.

[5] Quoted *De caelo* 294a26–7.

[6] *Strom.* 6. 149. 1. ῥηθέντα is copied from Aristotle in *De MXG* 976a36.

[7] Quoted in the *De anima* 430a29, whence it is copied by Simplicius, *De anima* 250. 23.

[8] Arist. *De gen. anim.* 722b20. Simpl. *De caelo* 586. 12, cf. 587. 1–2. The fragment is perhaps also quoted correctly by Aristotle at *De caelo* 300b30, where the manuscripts are divided. Πολλῶν, the false reading, also occurs in Tzetzes, *Schol. in Lycophron.* 507 and 711, ed. Scheer (Berolini, 1908) (Müller's edition (Lipsiae, 1811), vol. 2, p. 656, cf. p. 753, also records πολλαί), and in a scholium on Tzetzes' *Alleg. Il.* 4. 33, ed. Boissonade (Lutetiae, 1851), p. 101 = Cramer, *Anecdota Graeca*, vol. 3 (Oxonii, 1836), p. 379. 32.

[9] Quoted *Phys.* 199b9, whence it is copied by Simplicius, *Phys.* 382. 5 and 13.

[10] *Phys.* 381. 34.

[11] Quoted with slight corruptions *De anima* 404b15 (the correct order in one manuscript X), perhaps quoted correctly *Met.* 1000b8, where the manuscripts are divided.

[12] *Adv. math.* 1. 303, 7. 92, 7. 121. The verse is quoted in Aristotle's form by Proclus, *in Tim.* 2. 298. 10, and in a corrupt form in Hippolytus' manuscripts, *Ref.* 6. 11.

NOTE 7

THE ORDER OF SEPARATION OF THE ELEMENTS AND THE BEGINNING OF ROTATION

Cf. pp. 21 n. 4 and 155

THE SOURCES

The order in which the elements were separated in Strife's cosmogony is given differently in our various sources.

1. Pseudo-Plutarch's *Stromateis* 10 says that air is separated first, followed by fire:

ἐκ πρώτης φησὶ τῆς τῶν στοιχείων κράσεως ἀποκριθέντα τὸν ἀέρα περιχυθῆναι κύκλωι· μετὰ δὲ τὸν ἀέρα τὸ πῦρ ἐκδραμὸν καὶ οὐκ ἔχον ἑτέραν χώραν ἄνω ἐκτρέχειν ὑπὸ τοῦ περὶ τὸν ἀέρα πάγου.[1]

But the solid firmament, we are told elsewhere, is made by the action of fire on air, Ἐμπεδοκλῆς στερέμνιον εἶναι τὸν οὐρανὸν ἐξ ἀέρος συμπαγέντος ὑπὸ πυρὸς κρυσταλλοειδῶς.[2] How can fire, if it is separated second, meet πάγος already formed? Ferrari attempts to solve the difficulty by altering ὑπὸ πυρός to ὑπὲρ πυρός.[3]

2. Philo writes that aether is separated first. He then distinguishes aether from air and fire: *postquam enim secretus est aether, aer et ignis sursus volaverunt et caelum formatum quod in latissimo spatio circumferebatur.*[4] This implies that the *caelum*, which is quite likely the same as Pseudo-Plutarch's πάγος, was formed after or at the same time as the division of fire and air. There is the further complication, in this and the following account, that the distinction of aether from air and fire would appear to give us five elements.

[1] In Eusebius, *Praep. evang.* 1. 8. 10 (DK 31A30). For convenience we shall translate ἀήρ as 'air' throughout this note.

[2] Aet. 2. 11. 2 (DK 31A51). Cf. the formation of the moon a few lines later in the *Stromateis*.

[3] (1891), pp. 66–7.

[4] *De prov.* 2, p. 86 Aucher, in the corrected version of Aucher's translation provided by Diels, DK 1. 292. 15 ff.

3. Aetius 2. 6. 3 (DK 31 A 49) also distinguishes aether from air and fire, and also has aether separated first. But air is now put last, after earth and water:

'Εμπεδοκλῆς τὸν μὲν αἰθέρα πρῶτον διακριθῆναι, δεύτερον δὲ τὸ πῦρ, ἐφ' ὧι τὴν γῆν, ἐξ ἧς ἄγαν περισφιγγομένης τῆι ῥύμηι τῆς περιφορᾶς ἀναβλύσαι τὸ ὕδωρ, ἐξ οὗ θυμιαθῆναι τὸν ἀέρα· καὶ γενέσθαι τὸν μὲν οὐρανὸν ἐκ τοῦ αἰθέρος, τὸν δὲ ἥλιον ἐκ τοῦ πυρός, πιληθῆναι δὲ ἐκ τῶν ἄλλων τὰ περίγεια.

Diels punctuates with a colon before ἐξ οὗ so as to limit Aetius to four elements.[1] It is more natural, however, to take ἐξ οὗ as parallel to ἐξ ἧς and not to ἐκ τοῦ αἰθέρος. Air is the last element to be separated. From the elements there are formed οὐρανός, sun and stars. Another remedy has been to explain that ἀήρ here is not the element air but vaporized water.[2] As we shall see, however, there is good reason why air should be put last in this way, and why air should be listed in addition to aether.

4. Simplicius, apparently paraphrasing Alexander, remarks that air was separated first, *De caelo* 528. 21–4:

τὸ γὰρ νεῖκος αὐτῶι (*sc.* Empedocles) αἴτιον κεῖται τῆς τῶν στοιχείων τοιᾶσδε διακοσμήσεως, ὁποία ἐστὶν ἡ νῦν, καὶ τῆς δίνης τοῦ πέριξ ἀέρος, ὃν φησι πρῶτον ἀποκριθέντα φέρεσθαι κύκλωι.

In all therefore we have the following possibilities:

Stromateis	Philo
1. air.	1. aether.
2. fire (though with some confusion over the pre-formation of πάγος).	2. air and fire.
Aetius	Simplicius
1. aether.	1. air.
2. fire and later air.	

The confusion in our sources has been echoed by modern scholars.

Zeller explains that air is generally the same as aether.[3] Air therefore is separated first, followed by fire.[4] Zeller glosses over the

[1] *Dox.* p. 334a5, repeated in DK.

[2] E.g. Döring, 'Das Weltsystem des Empedokles', *Zeitschrift für Philosophie und philosophische Kritik*, n.F. 105 (1895), 31.

[3] ZN, p. 979 n. 5, cf. p. 985 n. 7.

[4] ZN, pp. 979–81.

difficulty of the pre-formed πάγος in Pseudo-Plutarch by writing of air 'am äussersten Rande sich verdichtend'. This thickening, according to Zeller, apparently takes place before fire has been separated, although a moment later Zeller quotes the passage which describes the formation of the solid firmament as due to fire.[1]

A slightly different version is given by Döring.[2] Döring follows Zeller in equating air and aether and in having air separated first. But Döring specifies that the solid firmament is made by fire during the second separation.[3]

PRIMARY AND SECONDARY SEPARATIONS

Most probably the solution is that there was not a single series of separations, with the elements separated out from a central mass in turn, one at a time. The conflict in the sources probably reflects a theory of primary and secondary separations. The first division of Empedocles' elements will have been into a mixture of air with fire and a mixture of earth with water. As Strife grew stronger, and as the speed of the *dine* increased, these two primary mixtures were separated into their components.

This interpretation would resolve as nearly as possible the contradictions in our sources.

The 'air' in Pseudo-Plutarch will at some stage of transmission

[1] ZN, p. 981 n. 2. Zeller is followed in essentials by Tannery, *Science hellène*, pp. 325–6; Ferrari (1891), pp. 66–7; perhaps Burnet, whose account is somewhat confused, *EGP*, pp. 228–9, 237, cf. pp. 219 n. 3 and 246 n. 2; Wellmann (1905), col. 2510; Kafka (1923), p. 205 n. 9; Mugler (1953), pp. 35–6; Battistini, *Trois contemporains, Héraclite, Parménide, Empédocle, traduction nouvelle et intégrale avec notices* (Paris, 1955), p. 122; and hesitantly by Raven (1957), p. 333. Cf. also Pfligersdorffer (1959), pp. 109–10.

[2] (1895), pp. 30–1 and 33, repeated in *Geschichte der griechischen Philosophie, gemeinverständlich nach den Quellen*, 2 vols. (Leipzig, 1903), vol. 1, p. 204.

[3] Döring is followed in essentials by Covotti (1901), p. 154; Millerd (1908), p. 63; Capelle, *Geschichte der Philosophie, Teil 1, von Thales bis Leukippos* (1922, 2nd edn Berlin, 1953), pp. 102–3; Robin (1923), pp. 122 and 128; Freeman (1946), pp. 187–8; and Zafiropulo (1953), p. 136.

There is a long but apparently inconclusive discussion of the nature of air and aether in Gilbert (1907), pp. 108–9, cf. p. 338 n. 1. Traglia (1952), p. 151, remarks that air and aether are 'assolutamente corrispondenti'. Other attempts to explain the discrepancy are made by Tischer (1843), pp. 19–20, and Pascal, *Rendiconti dell'Accademia di Archeologia, Lettere e Belle Arti di Napoli* (1902), p. 62 n. 2.

have represented air mixed with fire, so that the πάγος will have been formed as the components of this mixture are separated. The fire that then runs up under the πάγος will have been either more fire that is separated from the mixture of fire and air, or more fire that comes up from the central mass of elements, or both. (As a parallel for the second possibility we may compare the air in Aetius which is separated from the water that has itself been squeezed from the earth. These later separations of fire and air we shall consider more fully in a moment.)

Philo's account supports our interpretation in that fire and air are taken *together* as a second stage after the separation of aether. Further, the phrase *sursus volaverunt*, though we cannot be sure what it would have represented in Greek, suggests perhaps that fire and air separate *from each other*, and not from the central mass of elements below. The *caelum* will have been formed, as we suggested it was in Pseudo-Plutarch, when fire and air are separated from aether. Our interpretation does away with the difficulty of five elements. Aether is not strictly an element. It is the initial mixture of fire and air which is later separated into its components.

The initial separation of fire and air as aether from the central mass of elements will not have been a complete one. We know that there are now fires burning within the earth.[1] As Strife's power increases, the fire left within the earth will have to be separated. This no doubt is the fire which on its way to the surface forms the whole-natured creatures, fr. 62. Aetius has probably preserved a similar separation of air from sea at a later stage of the cosmogony. In so doing, Aetius has not unnaturally suppressed the first mention of air. This will have been made all the simpler since after Aristotle aether will have been taken as a single element and left to stand on its own as the first element to be separated, without being subdivided into fire and air.

With this explanation of aether as a mixture of air and fire, we will not need to expand, as Bignone does,[2] the phrase quoted above from Aetius 2. 6. 3 (DK 31A49): καὶ γενέσθαι τὸν μὲν οὐρανὸν ἐκ τοῦ αἰθέρος ⟨καὶ τοῦ πυρός⟩. The solid firmament will

[1] Fr. 52. Cf. [Aristotle], *Problem.* 937a11–16 (DK 31A69); Seneca, *Quaest. nat.* 3. 24. 1–3 (DK 31A68).

[2] P. 342 n. 1.

be formed, as we have suggested it is in Philo and Pseudo-Plutarch, by the action of fire and air which have been divided out from the primary separation of aether.

AETHER

The plausibility of this reconstruction depends in part on the notion of aether as a mixture of fire and air. This explanation of aether in Aetius is suggested briefly by Kranz.[1] He is perhaps following some very unsystematic remarks by Bignone that point in the same direction.[2] There are a number of indications that Empedocles made use of a mixture of fire and air in his cosmogony, and that the name for this was aether.

1. Aetius' account of the formation of stars, 2. 13. 2 (DK 31 A 53), explicitly attributes to Empedocles' cosmogony a mixture of fire and air: Ἐμπεδοκλῆς πύρινα (*sc.* εἶναι τὰ ἄστρα) ἐκ τοῦ πυρώδους, ὅπερ ὁ ἀὴρ ἐν ἑαυτῶι περιέχων ἐξανέθλιψε κατὰ τὴν πρώτην διάκρισιν.

2. Fr. 100 provides an apparent distinction in the use of αἰθήρ and ἀήρ. Αἰθήρ is used four times in that fragment, while ἄερος is recorded once, line 13.[3] It might be thought that ἄερος should be emended to αἰθέρος, so Stein, supported by Burnet,[4] or that even if genuine the use of different words is without significance. But the one occurrence of ἠέρος is for air that is *inside* the clepsydra when the clepsydra is immersed in water. Three of the occurrences of αἰθήρ, lines 7, 18 and 24, clearly designate air which is *outside* the clepsydra or *outside* the human body, while the other occurrence, line 5, quite probably again means primarily air that comes in *from outside*. In a writer so careful and so subtle as Empedocles

[1] DK 1. 292. 30 *apparatus criticus*.

[2] Pp. 238, 326 n. 4, 341 n. 2, 433.

[3] The source is Aristotle, *De resp.* 473b21, where the manuscripts are unanimous. The length of the fragment, 25 lines, probably means that Aristotle is not here quoting from memory, as he usually seems to be doing, see pp. 285–6 above. The correct reading for Empedocles, even if not for Aristotle, is probably ἠέρος, since Empedocles seems to show a preference for forms in -η-, see Merzdorf, 'Quaestiunculae Empedocleae' in *Commentationes philologae . . . G. Curtio dicatae* (Lipsiae, 1874), pp. 44–6: for a less decisive approach, see Buhl (1956), pp. 15–17.

[4] *EGP*, p. 219 n. 3, cf. pp. 228–9.

this difference may not be coincidental. The air outside still has fire mixed with it. When the clepsydra is submerged, this fire is quenched, lost to the surrounding water, and we have only ἀήρ not αἰθήρ.[1]

3. If αἰθήρ is fiery air, this will account for the apparent fluctuations in Empedocles' use of the term in other fragments. In three places, frr. 71, 98 and 109, αἰθήρ is distinguished from fire, which is described as ἠέλιος, Ἥφαιστος or πῦρ: so that in these fragments αἰθήρ might be thought to be simply air. But in fr. 38 we have two things, ὑγρὸς ἀήρ and Τιτὰν αἰθήρ. We need not suppose, as Raven does, that αἰθήρ now means fire.[2] It can still mean, as it has probably meant before, bright (cf. αἰθέρι παμφανόωντι fr. 98), *fiery* air. Aether as bright fiery air can properly be opposed *both* to fire pure and simple, as it is in frr. 71, 98 and 109, *and* to air which is damp and probably dark, as it is in fr. 38.

If this is so, then the distinction between αἰθήρ and ἀήρ in fr. 38 is essentially the same as the distinction we have argued for in fr. 100. It is no disadvantage that the distinction is, as Burnet notes, more or less the traditional one.[3]

Aristotle treats Empedocles' air and aether as equivalent in that he describes the subject of fr. 53 in one place as aether,[4] and in another place as air.[5] He also appears to paraphrase aether as πῦρ when quoting fr. 37.[6] However it would be quite characteristic of Aristotle to ignore the distinction we have argued for, if it was not directly relevant to his purpose. It is noteworthy that Aristotle never accuses Empedocles of simply equating aether and fire, despite the number of times he charges Anaxagoras with that error.[7]

[1] For comparable subtleties in the language and structure of Empedocles' verse see p. 116 on the order of words, μέσῃι Φιλότητι στροφάλιγγι; p. 140 on the order in which the elements are named; p. 311 on the arrangement of clauses in fr. 22; p. 322 on Empedocles' use of caesurae; pp. 323–4 on the schematization of verses in fr. 17.

There is an earlier but unsuccessful attempt to distinguish the use of air and aether in relation to fr. 100 by Knatz, 'Empedoclea', in *Schedae philologae Hermanno Usener . . . oblatae* (Bonn, 1891), p. 5.

[2] (1957), p. 333 n. 1.

[3] *EGP*, p. 228 n. 2.

[4] *De gen. et corr.* 334a1–5.

[5] *Physics* 196a20–3.

[6] *De gen. et corr.* 333a35–b2. He *appears* to do so, for it may be that πῦρ in Aristotle's text is meant to be an additional example to αἰθήρ in the fragment.

[7] *De caelo* 270b24–5, 302b4–5; *Meteor.* 339b21–5, 369b14–15.

PARALLEL ACCOUNTS IN LUCRETIUS AND DIODORUS

The distinction of primary and secondary separations and the accompanying notion of a mixture of air and fire appear again in Lucretius and in the Diodoran group of cosmogonies. This makes the more plausible our attribution of these ideas to Empedocles.

1. After a description of the precosmic state which we have already argued is derived from Empedocles' description of the Sphere and of total Strife (pp. 153–4, cf. also 270–1 above), Lucretius continues, 5. 443 ff.:

> diffugere inde loci partes coepere paresque
> cum paribus iungi res et discludere mundum
> membraque diuidere et magnas disponere partis,
> hoc est, a terris altum secernere caelum,
> et sorsum mare, uti secreto umore pateret,
> sorsus item puri secretique aetheris ignis.

This description appears to be founded on the notion of a primary division into *terrae* and *caelum*, in line 446, and then apparently two secondary separations, of sea from earth, in line 447, and of fire from aether, in line 448.

The idea of fire contained in aether appears again a few lines later, 457 ff.:

> ideo per rara foramina terrae
> partibus erumpens primus se sustulit aether
> ignifer et multos secum leuis abstulit ignis.

These two substances are later separated from *aeriae aurae*, 495–508.

The complementary notion of a primary mixture from which are separated dry land and sea appears again fairly clearly when the formation of the sea is described in more detail a few lines later, 483 ff.:

> inque dies quanto circum magis aetheris aestus
> et radii solis cogebant undique terram
> uerberibus crebris extrema ad limina in artum,

in medio ut propulsa suo condensa coiret,
tum magis expressus salsus de corpore sudor
augebat mare manando camposque natantis.

Here, the notion of the sea as sweat is Empedoclean, fr. 55 γῆς ἱδρῶτα θάλασσαν. The sea's origin as the result of compression caused by rotation, probably the rotation of the sun, is also Empedoclean: it is contained in two reports on Empedocles from Aetius.[1] There is a similar theory in the continuation of Philo's account, except that here the compression is caused by winds, *De prov.* 2, pp. 86–7 Aucher = DK 1. 295. 10 ff.: *deinde ratiocinatus de mari ait: postquam concretum est id quod erat in extremitate orae maxime grandinis more, aqua limosa ⟨facta est⟩. quidquid enim in terra humidi est, in demissis depressisque eius locis a ventis certatim flantibus nexibus quam fortissimis undique comprimi solebat.* Very probably the mention of winds is mistaken. Philo's *nexibus quam fortissimis* is very like Lucretius' *uerberibus crebris* and Empedocles' own ῥιπῆισιν ἐωσμένος ἠελίοιο, fr. 56, which describes the formation of salt, presumably from the sea. In Philo's account compression should probably also be caused by the sun, as it is in Lucretius and in fr. 56. Lucretius' *aetheris aestus* may possibly indicate the means of transition from sun to winds.

2. Diodorus' cosmogony and its counterparts record a similar separation of the elements.[2] We have already suggested that the irregular movement of the air implied in these accounts is Empedoclean (pp. 272–3, cf. pp. 268–9). Also, in Diodorus and apparently in Tzetzes *in Iliadem* the sun and stars are kept aloft by a *dine* or *periphora*, as in Empedocles (cf. pp. 51–2 above). The wombs that appear later are reminiscent of Empedocles' whole-natured creatures (see p. 215 above). In these cosmogonies, as in Lucretius, we also find the essential points of our present reconstruction of Empedocles. First, there is the notion, albeit in this case an implicit one, of a primary mixture of air and fire as the first stage of separation, after which this mixture is divided into its components. Secondly, the sea is formed from an original

[1] 2. 6. 3 (DK 31 A 49), quoted above p. 288, and 3. 16. 3 (DK 31 A 66). For rotation as rotation of the sun, see p. 52 n. 3 above.

[2] Diodorus 1. 7; Tzetzes, *Exeg. in Il.* 55. 28 ff. Hermann, *Schol. in Hesiod.* vol. 3, p. 58 Gaisford; Hermippus, *De astrol.* 2. 2 ff.

mass of earth and water that has evidently been left behind after the separation of air and fire.

First, in Diodorus and in both of Tzetzes' accounts air is apparently separated first from the original mass of elements. But in Diodorus and in Tzetzes *in Iliadem* this air proves to have had fire mixed with it, and the fire is now separated out:

Diodorus. τὸν δ' ἀέρα κινήσεως τυχεῖν συνεχοῦς καὶ τὸ μὲν πυρῶδες αὐτοῦ πρὸς τοὺς μετεωροτάτους τόπους συνδραμεῖν, ἀνωφεροῦς οὔσης τῆς τοιαύτης φύσεως διὰ τὴν κουφότητα.

Tzetzes. τοῦ ἀέρος κινήσεως συνεχοῦς τετευχότος, συμβῆναι τὸ πυρῶδες αὐτοῦ διὰ τὴν κουφότητα πρὸς τοὺς μετεωροτέρους τόπους ἀναδραμεῖν.

Secondly, the separation of earth and sea is of the pattern we have suggested for Empedocles, in that these two elements are separated from a mixture of earth and water that had evidently been left behind after the separation of air and fire. This is true of all the cosmogonies of this group:

Diodorus. τὸ δὲ ἰλυῶδες καὶ θολερὸν μετὰ τῆς τῶν ὑγρῶν συγκρίσεως ἐπὶ ταὐτὸ καταστῆναι διὰ τὸ βάρος· εἱλούμενον δ' ἐν ἑαυτῷ συνεχῶς καὶ συστρεφόμενον ἐκ μὲν τῶν ὑγρῶν τὴν θάλατταν, ἐκ δὲ τῶν στερεμνιωτέρων ποιῆσαι τὴν γῆν πηλώδη καὶ παντελῶς ἁπαλήν· ταύτην δὲ τὸ μὲν πρῶτον τοῦ περὶ τὸν ἥλιον πυρὸς καταλάμψαντος πῆξιν λαβεῖν etc.

Tzetzes, *Exeg. in Il.* τὸ παχὺ[1] δὲ καὶ ἰλυῶδες[2] σὺν τῷι ὑγρῷι κατενεχθῆναι κάτω διὰ τὸ βάρος, συστρεφόμενον δέ, ἐκ μὲν τῶν ὑγρῶν ποιῆσαι τὴν θάλασσαν, ἐκ δὲ τῶν στερεωτέρων τὴν γῆν, πηλώδη καὶ ἁπαλήν, θερμαινομένην δὲ τῷι ἡλίωι . . .

Tzetzes, *in Hes.* καὶ ὑποστῆναι τὴν γῆν πηλώδη καὶ παντελῶς ἁπαλήν . . .

Hermippus. γῆ δὲ τῶι ὕδατι συμμιγής, οὗ μὲν πλέον ὑπ' αὐτοῦ ἐπιέζετο, βαθεῖά τε καὶ κοίλη ἐγένετο, οὗ δὲ οὐδὲν ἢ ὀλίγον ἐπῆν, τὰ ὄρη ἐλείπετο.[3] ἀλλ' ἐπεὶ τὸ ὕδωρ ἐπὶ γῆς τὴν οἰκείαν χώραν ἐπέλαβεν, αὕτη δὲ διάβροχος οὖσα τὴν οἰκείαν μορφὴν ὑπὸ τοῦ ἡλίου προσβάλλοντος καὶ πρὸς τὸ ξηρότερον μεθιστάντος κατὰ μικρὸν ἀπελάμβανε, φύονται δὴ πρῶτον etc.

[1] παχὺ scripsi. ταχὺ cod.
[2] ἰλυῶδες scripsi, cf. L.S.J., *s.v.* ἰλιῶδες cod.
[3] Lucretius gives a similar account of the origin of hills, 5. 492–4.

Cf. Plutarch. ποταμῶν ἐκβολαῖς ἀτάκτοις, καὶ πολλὰ 'λίμναισιν ἄμορφα' καὶ πηλοῖς βαθέσι. . . .ἐξηγρίωτο.[1]

The idea which appears in these accounts of the formation of the sea as the result of compression and from the action of the sun is, as we have noted, Empedoclean. The soggy condition of the earth as a stage in the development of dry land and sea, πηλώδης καὶ ἀπαλή in three accounts, διάβροχος in Hermippus, probably reflects the *aqua limosa* in Philo's account of Empedocles, and perhaps Lucretius' *campos natantis*.

It is almost inevitable that in Empedocles, as in Lucretius and in the Diodoran group of cosmogonies, these details will have been bound up with the root conception of a separation of sea and dry land from a primary mixture of earth and water. That idea is perhaps a simple and obvious one. But it does something to support the idea that celestial phenomena will have been explained in a similar way by the notion of a separation of air and fire from a primary mixture of those two elements.

THE BEGINNING OF ROTATION[2]

The cosmogony in the *Stromateis*, quoted above (p. 287), continues with the following account of rotation:

εἶναι δὲ κύκλωι περὶ τὴν γῆν φερόμενα δύο ἡμισφαίρια, τὸ μὲν καθόλου πυρός, τὸ δὲ μικτὸν ἐξ ἀέρος καὶ ὀλίγου πυρός, ὅπερ οἴεται τὴν νύκτα εἶναι. τὴν δὲ ἀρχὴν τῆς κινήσεως συμβῆναι ἀπὸ τοῦ τετυχηκέναι κατά ⟨τι add. Diels⟩ τὸν ἀθροισμὸν ἐπιβρίσαντος τοῦ πυρός.

With Diels' supplement the meaning of the last sentence is evidently: 'the beginning of movement arose because there happened to be the accumulation in one particular direction of the fire that pressed down in that direction'. The same event is probably recorded indirectly in Aetius, 2. 8. 2 (DK 31A58): Ἐμπεδοκλῆς τοῦ ἀέρος εἴξαντος τῆι τοῦ ἡλίου ὁρμῆι ἐπικλιθῆναι τὰς ἄρκτους.

Bignone gives the following explanation of this entry in the *Stromateis*: 'il fuoco, che pesa più dell' aria e che occupava l'emisfero superiore, col soverchiare del suo peso fece che i due

[1] *De esu carn.* 993E; for the context see p. 49 above.
[2] Cf. p. 21 n. 4 above.

emisferi si rovesciassero'.[1] But if fire is heavier than air, how does it come to occupy the upper hemisphere? And if it is lighter than air, then how, as Raven asks, can the accumulation of a light element in the upper hemisphere cause disequilibrium?[2]

The answer seems to be that Empedocles has thought of fire not as moving out from the central mass of elements equally in all directions, but at least at this stage of the cosmogony as moving predominantly upwards. Thus there is formed an accumulation of fire under the crystalline firmament and above the earth. As separation continues, this fire has to find more room for itself, and so is squeezed around the inner circumference of the crystalline firmament. It moves around in one direction only, and so makes a start of rotation.

This reconstruction hinges on two points: the 'bending' movement of fire around the inner surface of the firmament, and the notion in some sense of an absolute up and down to the universe as distinct from movement that is simply towards and away from the centre.

1. The first point seems to be reflected briefly in Lucretius' account of the formation of the heavens, 5. 467 ff.:

> sic igitur tum se leuis ac diffusilis aether
> corpore concreto circumdatus undique ⟨flexit⟩[3]
> et late diffusus in omnis undique partis
> omnia sic auido complexu cetera saepsit.

This follows a cosmogony which already has a high Empedoclean content, with a precosmic state derived from Empedocles' account of the Sphere and of total Strife (see pp. 153–4 above), and a storm of the elements (see pp. 270–1 above), and a primary and secondary separation of the elements that we have just argued is peculiarly Empedoclean (see pp. 293–4 above). Line 470 seems to be an imitation of fr. 38. 4,

> Τιτὰν ἠδ' αἰθὴρ σφίγγων περὶ κύκλον ἅπαντα.

In this passage aether is surrounded by a solid body, *corpore concreto circumdatus*, and therefore *bends* itself, *se. . .flexit*, until it entirely covers the inner surface of the firmament.

[1] P. 328 n. 1. [2] (1957), p. 333 n. 2.
[3] Add. Lachmann. saepsit OQ, cf. 470.

It is true that there is nothing here of movement in one direction only. But that detail is perhaps supplied in the description given a few lines later of one of the possible causes of rotation, 519 ff.:

> siue quod inclusi rapidi sunt aetheris aestus
> *quaerentesque uiam circum uersantur* et ignis
> passim per caeli uoluunt summania templa.

2. The second point in our reconstruction at first sight may seem perhaps more unusual: that Empedocles will have thought in some way of an absolute up and down to the universe. Fire, at least at this stage in the cosmogony, will be separated not towards the circumference evenly in all directions, but predominantly upwards from the central mass of elements. Only then will it spread itself all around the circumference.

Such an idea is not in fact altogether surprising. Anaximander, it is true, held that the earth remained at the centre διὰ τὴν ὁμοιότητα, i.e. because there was no reason why it should move in one direction more than in any other.[1] Thus Anaximander has evidently overcome the notion of a universe with an absolute up and down where the earth would be in danger of falling. Anaximander's theory is mentioned by Plato in the *Timaeus*.[2] But Plato's manner, as he puts forward his own theory of weight and direction, shows how tenacious must have been the idea of an absolute up and down.[3] In fact after Anaximander theories were put forward which assumed that the earth would 'fall' to the bottom of the universe if there were not some power to sustain it. Thus Anaximenes supposes that the earth 'rides' on air because of its width: a somewhat similar view is attributed to Anaxagoras.[4]

Some such notion of an absolute up and down appears also to be required by Empedocles' explanation of the immobility of the earth as due to the force of the *dine*.[5] Ultimately the *dine* is designed

[1] Arist. *De caelo* 295 b 10–16 (DK 12 A 26).
[2] 62 D 12–63 A 2, without Anaximander's name, but with the same word ὁμοιότης as in Aristotle.
[3] 62 C–64 A, cf. especially 62 C 5–8.
[4] Hippol. *Ref.* 1. 7. 4 (DK 13 A 7); 1. 8. 3 (DK 59 A 42).
[5] Arist. *De caelo* 295 a 16–21, cf. p. 51 above.

presumably to overpower the centrifugal spread of earth, which will be the final result of Love's influence.[1] But more immediately perhaps Empedocles supposes that the earth would 'fall' to the bottom of the universe, if it were not held aloft by the *dine*. This seems to be the implication of Aristotle's phrase, τὴν τῆς γῆς φορὰν κωλύειν,[2] and of the image of the κύαθοι.[3]

If Empedocles supposed that the earth, if it were not kept aloft by the *dine*, would 'fall', that is move downwards from the centre, he could well have thought that in the cosmogony fire by the same token would 'rise', that is move upwards from the centre, not outwards in all directions equally.

Both the points required for our reconstruction of the beginning of rotation seem to lie at the root of the explanation of the movement of the sun between the tropics attributed to Empedocles by Aetius, 2. 23. 3 (DK 31A58): Ἐμπεδοκλῆς ὑπὸ τῆς περιεχούσης αὐτὸν σφαίρας κωλυόμενον ἄχρι παντὸς εὐθυπορεῖν καὶ ὑπὸ τῶν τροπικῶν κύκλων (*sc.* τὸν ἥλιον τρέπεσθαι). First, the implication of ἄχρι παντὸς εὐθυπορεῖν seems to be that the sun, if left to itself, would move in a straight line. Similarly fire, we have suggested, would in the cosmogony move predominantly in a straight line upwards, not outwards from the centre in all directions. Secondly, in Aetius' account the sun is prevented from moving in a straight line by the spherical shape of the firmament. Similarly fire, we have suggested, first moves upwards and accumulates under the firmament. Then the shape of the world diverts the movement of fire into a circular movement, and this causes the heavens to rotate.

CONCLUSION

Aether, a mixture of air and fire, is first separated from the mass of elements. This then divides into its components. The fire hardens the air to form the crystalline firmament. More air and fire remains in the central mass of elements and is increasingly separated. Fire rises upwards and accumulates beneath the firmament. As more and more fire accumulates, it is forced to move round the inner circumference of the firmament. This is the beginning of rotation.

[1] For a fuller exposition of his point, see p. 264 above.
[2] *De caelo* 295a16–18 quoted p. 51 above. [3] *De caelo* 295a18–21.

The initial separation of aether had left behind a mass of earth and water. As the rotation of the sun around the earth grows faster and stronger, sea is forced from the earth. It has a salty flavour. It is the earth's sweat. The earth which had been soggy and marshy dries out under the sun's rays. More air is forced out of the sea. More fire is forced out of the earth. As fire rises through the earth it forms whole-natured creatures.

The account of rotation shows that fire, apart from πάγος, is outside air. The sea is squeezed out of the earth, so that earth will be the innermost of the elements. Thus the order of the elements, when the process of separation is completed under total Strife, is likely to be: earth, water, air and fire.

NOTE 8

LIKE TO LIKE

Cf. p. 194 n. 3

ARISTOTLE

We have argued above that a passage in Aetius which explains the distribution of animals among the elements on the principle of like to like is probably a correct description of the zoogony of increasing Strife. Two passages from Aristotle have been taken to mean that in Aristotle's view Empedocles could not have held the principle of the attraction of like to like:

De gen. et corr. 323b1–12. περὶ δὲ τοῦ ποιεῖν καὶ πάσχειν λεκτέον ἐφεξῆς. παρειλήφαμεν δὲ παρὰ τῶν πρότερον ὑπεναντίους ἀλλήλοις λόγους. οἱ μὲν γὰρ πλεῖστοι τοῦτό γε ὁμονοητικῶς λέγουσιν, ὡς τὸ μὲν ὅμοιον ὑπὸ τοῦ ὁμοίου πᾶν ἀπαθές ἐστι. . .Δημόκριτος δὲ παρὰ τοὺς ἄλλους ἰδίως ἔλεξε μόνος· φησὶ γὰρ τὸ αὐτὸ καὶ ὅμοιον εἶναι τό τε ποιοῦν καὶ τὸ πάσχον.

De anima 410a21–6. τοῖς δὴ λέγουσιν ἐκ πάντων (*sc.* τῶν στοιχείων εἶναι τὴν ψυχήν[1]) ταῦτά τε καὶ τοιαῦθ' ἕτερα συμβαίνει. ἄτοπον δὲ καὶ τὸ φάναι μὲν ἀπαθὲς εἶναι τὸ ὅμοιον ὑπὸ τοῦ ὁμοίου, αἰσθάνεσθαι δὲ τὸ ὅμοιον τοῦ ὁμοίου καὶ γινώσκειν τῶι ὁμοίωι τὸ ὅμοιον· τὸ δ' αἰσθάνεσθαι πάσχειν τι καὶ κινεῖσθαι τιθέασιν· ὁμοίως δὲ καὶ τὸ νοεῖν τε καὶ γινώσκειν.

In the first passage Aristotle has been thought to say that Democritus alone held the principle of the attraction of like to like.[2] In the *De anima* some thinkers who explain perception as the action of like on like hold that in general likes are impassive: several scholars take the criticism to include Empedocles.[3] Both points are founded on a misunderstanding of the content and

[1] This is the view of Empedocles, see 404b8–15, 405b8–10 and *De gen. et corr.* 334a9–10. Cf. pp. 334–5 below.

[2] This is the interpretation of Millerd (1908), p. 41; Joachim, who admits to being puzzled, in his edition of the *De gen. et corr.*, *ad loc.*; and Cherniss, *ACP*, p. 91 n. 387.

[3] Hicks, in his edition of the *De anima*, *ad loc.*; Cherniss, *ACP*, p. 91 n. 387; and Ross, in his edition of the *De anima*, *ad loc.*

context of Aristotle's criticisms. In fact elsewhere Aristotle specifically attributes to Empedocles the theory that like desires like.[1]

1. It would clearly be absurd for Aristotle to restrict to Democritus' private use a principle that went back to Homer, *Od.* 17. 218, and that since then, Plato tells us, could be found in the writings of the wisest philosophers, *Lysis* 214A–D. The point of Aristotle's present appraisal of Democritus can be seen in a slightly earlier passage, 315a26 ff. Plato gave some account of the genesis of the elements. But the genesis of other things and the whole question of *alloiosis* and *auxesis* have been ignored. Aristotle continues, *De gen. et corr.* 315a34–b8:

ὅλως δὲ παρὰ τὰ ἐπιπολῆς περὶ οὐδενὸς οὐδεὶς ἐπέστησεν ἔξω Δημοκρίτου· οὗτος δ' ἔοικε μὲν περὶ ἁπάντων φροντίσαι, ἤδη δὲ ἐν τῶι πῶς διαφέρει. οὔτε γὰρ περὶ αὐξήσεως οὐδεὶς οὐδὲν διώρισεν, ὥσπερ λέγομεν, ὅ τι μὴ κἂν ὁ τυχὼν εἶπειεν, ὅτι προσιόντος αὐξάνονται ⟨τοῦ ὁμοίου add. Forster, Loeb edition 1955⟩ τῶι ὁμοίωι (πῶς δὲ τοῦτο, οὐκέτι), οὐδὲ περὶ μίξεως, οὐδὲ περὶ τῶν ἄλλων ὡς εἰπεῖν οὐδενός, οἷον τοῦ ποιεῖν ἢ τοῦ πάσχειν, τίνα τρόπον τὸ μὲν ποιεῖ τὸ δὲ πάσχει τὰς φυσικὰς ποιήσεις. Δημόκριτος δὲ καὶ Λεύκιππος ποιήσαντες τὰ σχήματα τὴν ἀλλοίωσιν καὶ τὴν γένεσιν ἐκ τούτων ποιοῦσι etc.

Here others besides Democritus use the principle of like to like, but Democritus alone has considered the whole question and has gone into details. This in itself would perhaps be sufficient to set Democritus apart as the sole protagonist of the theory of like to like in the later passage. But there is a further specific point. Those who in the earlier passage have made use of the affinity of likes in a casual and unthinking way are said specifically not to have gone into the nature of action and passion. Aristotle is perfectly consistent therefore in saying in the later passage that Democritus *alone* explained *action and passion* in terms of like to like.

2. Ross supposes that in the *De generatione et corruptione* everyone except Democritus is said to have denied the principle

[1] *Eth. Nic.* 1155b6–8. The passages noted above from the *De gen. et corr.* and from the *De anima* are discussed in connection with several fragments of Empedocles by Clark, *Empedocles and Anaxagoras in Aristotle's De anima*, (printed dissertation, Philadelphia, 1929), pp. 19–26. The conclusions however seem hopelessly tangled, as Clark himself more or less admits, pp. 25–6.

of like to like. He argues that since in Aristotle's view everyone except Anaxagoras explained perception by likes, *De anima* 405b13–21, including especially Empedocles, 404b8–18 and 410a27–9, therefore everyone, except Democritus and Anaxagoras, and including Empedocles, is in the present passage of the *De anima* said to be inconsistent in denying the action of like on like in general and reverting to its use for perception.

It is true that most of the arguments of this section of the *De anima*, 409b19–410b15, are directed primarily or solely against Empedocles. But Aristotle's intention at the outset, 409b23–5, is to include all those who explain perception by the presence of like elements in the soul. Several such theories, in addition to Empedocles', have been enumerated not long before, 404b7–405b30. Empedocles bears the brunt of the attack, no doubt because his exposition of perception by likes was the most explicit (fr. 109), and perhaps the most detailed. But the present charge of inconsistency is plainly marked off from the passages before and after where Empedocles is the main or the only target. It is an isolated criticism. Looked at purely from the point of view of context, there is no need for it to refer to Empedocles at all.

Other passages show that in fact Anaxagoras and Democritus are probably not the only exceptions to the charge of inconsistency. The earlier passage of the *De generatione et corruptione* shows that philosophers other than Democritus explained *auxesis*, however inadequately, on the principle of like to like, while the later passage shows that the majority were opposed to Democritus in holding that likes were impassive. The same division appears later in the *De anima*, between those who explain nourishment by likes and those who explain nourishment by opposites.[1]

Now Hicks, Cherniss and Ross all agree, on the strength of fr. 90, that Empedocles is an example of the view that nourishment is by likes.[2] This is true. But it is inconsistent with their view that Empedocles is criticized for inconsistency in the earlier part of the

[1] 416a21–33. The latter opinion is introduced by δοκεῖ, a21 and 31, which, as Cherniss notes, *ACP*, p. 92 n. 389, suggests a common opinion. This fits in with οἱ πλεῖστοι used in the *De generatione et corruptione* to describe the opponents of Democritus, those who hold that likes are impassive.

[2] Hicks and Ross in their notes to 416a30; Cherniss, *ACP*, p. 92 n. 389.

De anima.[1] Those who explain nourishment on the principle of likes are *opposed* to the party, apparently a majority, which explains nourishment by opposites. It is this latter party *alone* which can be charged with inconsistency, in that, on Aristotle's view, it reverts to explaining perception by likes, whereas it explains nourishment by opposites, and (if we collate the later passage of the *De generatione et corruptione*) declares that in general likes are impassive.

One member at least of the majority party can be identified. Heraclitus explained nourishment by opposites, at least in the case of the sun being 'fed' by watery exhalations.[2] On the other hand Heraclitus is specifically included among all those who explained perception by likes, *De anima* 405a25–9. Here perhaps Aristotle is unfair. Theophrastus says that Heraclitus explained perception by opposites, *De sens.* 1. But Anaxagoras is the only person whom Aristotle will except from the rule that earlier thinkers explained perception by likes, 405b11–23. In Heraclitus' case, Aristotle tells us, both percipient and object perceived were moving and so like. Thus Heraclitus used opposites to explain nourishment, and so will be included among those who contradict themselves when they explain perception by likes.

It is significant therefore that at *Eth. Nic.* 1155a32–b8 Empedocles is specifically *contrasted* to Heraclitus and Euripides in that Empedocles believes in the desire of like for like, while Heraclitus and Euripides believe in the desire of opposites.[3] Thus Empedocles, as we should suspect in any case from the fragments, belongs in Aristotle's view to the minority group. This is the group which in the earlier passage of the *De generatione et corruptione* explains *auxesis* by likes (cf. fr. 37), and which in the later passage of the *De anima* explains nourishment also by likes (cf. fr. 90), the group therefore which is excluded from the charge of inconsistency in explaining perception by likes.

[1] As cited p. 301 n. 3 above.

[2] *Meteor.* 354b33–355a21. For the attribution to Heraclitus, see Cherniss, *ACP*, p. 133 n. 541, who notes the implication, 355a9–11, that Heraclitus spoke of τρέφεσθαι. The same word is used for Heraclitus' and the Stoics' account of the stars in Aetius 2. 17. 4 (cf. DK 22a11): but in Heraclitus' case this is probably wrong, since Aristotle implies that Heraclitus neglected to provide for the stars' nourishment, 355a18–21.

[3] There is a similar mention of Empedocles in *Eth. Eud.* 1235a5–12 and *Magna moralia* 1208b8–20.

FRAGMENT 22

Frr. 90 (nourishment) and 109 (perception) are not the only evidence that in fact Empedocles believed in the attraction of like for like. Fr. 37 (quoted p. 315 below) describes the accumulation of like elements. The whole-natured creatures are driven upwards by fire 'desiring to reach its like', fr. 62. 6. In fr. 110 Empedocles warns his pupil against the loss of accumulated wisdom in terms which again express the attraction of like for like, lines 8–9:

> ἦ σ' ἄφαρ ἐκλείψουσι περιπλομένοιο χρόνοιο
> σφῶν αὐτῶν ποθέοντα φίλην ἐπὶ γένναν ἱκέσθαι.[1]

But while these instances justify Empedocles' being classed with those who believe in the principle of like to like in particular instances, how can Aristotle say, as he does in the *Ethics*, that Empedocles believes in the desire of likes as a general rule? For surely in Love's world opposite elements must be drawn to each other? In particular, Aristotle's generalization in the *Ethics* may support Aetius' account of animals being distributed among the elements on the principle of like to like. But how can the *Ethics* be reconciled with Aristotle's own account of the opposite behaviour in Empedocles, fish that are fiery creatures and take to the water?

The answer probably lies in the following verses:

> ἄρθμια μὲν γὰρ ταῦτα ἑαυτῶν πάντα μέρεσσιν,
> ἠλέκτωρ τε χθών τε καὶ οὐρανὸς ἠδὲ θάλασσα,
> ὅσσα φιν ἐν θνητοῖσιν ἀποπλαχθέντα πέφυκεν·
> ὡς δ' αὕτως ὅσα κρῆσιν ἐπαρκέα μᾶλλον ἔασιν
> 5 ἀλλήλοις ⟨τ'⟩ ἔστερκται ὁμοιωθέντ' Ἀφροδίτηι,
> ἐχθρὰ πλεῖστον ἀπ' ἀλλήλων διέχουσι μάλιστα
> γέννηι τε κρήσει τε καὶ εἴδεσιν ἐκμάκτοισι,
> πάντηι συγγίνεσθαι ἀήθεα καὶ μάλα λυγρά
> 9 Νείκεος ἐννεσίηισιν, ὅτε σφισι γένναν ἔοργεν.[2]

The sense of these lines is initially somewhat obscure. They have not yet been explained satisfactorily.

[1] Cf. lines 4–5, quoted p. 315 below. For other examples of the action of like to like in Empedocles see pp. 193–4 above.

[2] ⟨τ'⟩ line 5 and ὅτε line 9 are discussed below.

Panzerbieter[1] and apparently Diels see the first five lines as explaining how things attract one another, and the remaining four lines as explaining the powers of repulsion. The opening five lines describe first the attraction between the parts of each element, lines 1–3, and secondly the attraction of one element for another, lines 4–5.

Mugler's thesis is not altogether clear.[2] But Mugler too sees lines 1–3 as expressing a single truth, a truth which in this case is repeated in lines 6–9. By the power of Strife the parts of each element are attracted to themselves, lines 1–3. But when this process is completed, Love draws one element to another, so hindering the attraction of like for like, lines 4–5. Then Strife draws the elements apart again, and unites each with itself, lines 6–9.

Neither analysis is correct. There is primarily a twofold division of meaning, marked by the contrast between ἑαυτῶν (and φιν, discussed below) in lines 1 and 3, and ἀλλήλοις and ἀλλήλων in lines 5–6. The contrast is between the parts of each element considered in their relation to themselves, ἑαυτῶν, and the different elements (or some of them, see the discussion of line 4 below, p. 308) taken each as a whole and considered in their relation to one another, ἀλλήλοις. Thus the first line tells us that the parts of each element are 'close fitting', ἄρθμια, to the parts of *themselves*, ἑαυτῶν. For example each part of fire will be 'close fitting' with every other part. Lines 4 and 5 tell us that different elements 'cling to *one another*', ἀλλήλοις. Thus fire for example would cling to water. (The choice of elements is discussed below.)

What somewhat complicates the point is the subdivision of meaning within each half of the fragment. Thus lines 1–2 tell us that the parts of each element are close fitting with themselves. Line 3 tells us that in fact among mortal things the parts of each element are separated, ἀποπλαχθέντα πέφυκεν. Similarly, lines 4–5 tell us that different elements 'cling to one another'. Lines 6 ff. tell us that under Strife's influence these same elements keep furthest apart from each other and are wholly unsuited for mingling.

Thus the primary division of the fragment is between the parts of each element considered in relation to themselves, lines 1–3,

[1] (1845), coll. 886–7. [2] (1951), pp. 61–5.

and different elements considered in their relation to one another, lines 4–9. Within each half we are told first of joining together or mixing, lines 1–2 and lines 4–5, and then of separation, line 3 and lines 6–9.

There are some minor points connected with this interpretation.

Diels refers ὅσσα to μέρη. He translates: '*quotquot* (*sc.* μέρη) *eis* (*sc.* puris elementis)...' But it is less simple to refer ὅσσα to μέρη than to the elements that have been listed in the preceding line. We should translate: '*quotquot* (*sc.* elementa) *eis* (*sc.* μέρη)...' In this way the elements remain the subject throughout the first three lines, and are the more easily carried over as the subject of the lines that follow.

Several attempts have been made to emend φιν in line 3: τιν' by Panzerbieter,[1] νῦν by Stein, and φίλ' by Diels.[2] But to introduce the notion of Love into the first 'half' of the fragment disturbs the whole sense of the piece.[3] Later Diels retains φιν and translates: '*quotquot* (*sc.* μέρη) *eis* (*sc.* puris elementis) *disiuncta extant in mortali mundo*'.[4] But except in some dialects (see L.S.J., *s.v.* ἀπό) it is impossible to treat φιν, a dative, as directly dependent on ἀποπλαχθέντα in this way. Probably we should supply the sense of μερέων, and take φιν as having what Schwyzer calls 'genetivische Auffassung'.[5] 'The elements wander separately from their parts.'

It is true that the notion of an element 'wandering separately from its parts' leads, if pressed, to an impossible disjunction between the notion of an element and the notion of its parts. For an element is its parts. The parts of an element may be said to wander separately from themselves, i.e. one part separately from another. But an element cannot strictly be said to wander separately from its parts, i.e. separately from itself. However this incipient anomaly is no greater than in the first line, where 'these are close fitting with their own parts' means in effect that 'the parts of each element are close fitting with themselves'. In either

[1] (1845), coll. 886–7.
[2] (1880), p. 165. Diels is followed by Munding (1954), p. 139.
[3] Cf. pp. 311–12 below.
[4] *Poet. phil. fragm., ad loc.*
[5] *Griechische Grammatik*, vol. 2, p. 189.

case the elements are the subject, and are described each in relation to its own parts.

It should be observed that understood in this way φιν serves to bring out the primary balance of the fragment, which we have already explained, between elements considered in relation to themselves, and elements considered in their relation to one another. At the same time φιν adds to the careful and elaborate verbal structure of the piece by duplicating ἑαυτῶν in the same way that ἀλλήλων in line 6 duplicates ἀλλήλοις in line 5.

In line 4 ὅσα κρῆσιν does not introduce a wholly new class of objects. All the elements have already been listed in line 2. The point is now that Empedocles singles out elements that are more particularly suited for mingling, μᾶλλον, and says that these most of all, μάλιστα, keep furthest apart, πλεῖστον, when they are subject to the influence of Strife. We may note that fire and water, the two elements most obviously contrasted from the point of view of common sense (compare, e.g., Aeschylus, *Ag.* 650–2), in fact appear to be the very elements which Love is most prone to unite. They are united when Love leads fiery animals, fish, into a cold element, the sea (references and discussion pp. 189–91 above). They are united in the creatures which we have argued best exhibit Love's harmony, the whole-natured forms (references and discussion pp. 205–6 above). There is even, we have suggested, some motive in the order in which Empedocles lists the elements. Fire and water are furthest apart when Strife is powerful, and they are juxtaposed when Love is present, for example in the formation of bones and flesh (references p. 140 above).

Κρῆσιν in line 4 is probably significant, in that most likely it can signify only the mixing of one element with another, and not the union between the parts of a single element. Thus κρῆσιν is an additional clarification of the main contrast between ἑαυτῶν and φιν on the one hand and ἀλλήλοις and ἀλλήλων on the other.

This interpretation may seem to occasion a difficulty when we come to κρήσει in line 7. For if the elements are the subject of this line, carried over from line 4, and if κρῆσις can be used only of the mixture of one element with another and not of the union between parts of a single element, then how can one element be opposed

to another κρήσει? On our interpretation there is no κρῆσις of a single element. The expression κρήσει would seem to be in place only if the subject of the sentence were things *composed of* the elements, as, for example, in Aetius' account of pleasure and pain:

Ἐμπεδοκλῆς τὰς ἡδονὰς γίνεσθαι (*sc.* φησί) τοῖς μὲν ὁμοίοις ⟨ἐκ add. Meineke⟩ τῶν ὁμοίων, κατὰ δὲ τὸ ἐλλεῖπον πρὸς τὴν ἀναπλήρωσιν, ὥστε τῶι ἐλλείποντι ἡ ὄρεξις τοῦ ὁμοίου. τὰς δ' ἀλγηδόνας τοῖς ἐναντίοις· ἠλλοτριῶσθαι γὰρ πρὸς ἄλληλα ὅσα διαφέρει κατά τε τὴν σύγκρισιν καὶ τὴν τῶν στοιχείων κρᾶσιν.[1]

Should we then suppose that the elements as listed in line 2 are no longer the subject of the fragment: that ὅσα in line 4 does in fact introduce a new class of objects? No. The difficulty is only superficial. For the answer is most likely that κρήσει in line 7 means in effect *capacity for* mixture or *aptitude for* mixture. The expression is probably inserted to provide a precise contrast with κρῆσιν ἐπαρκέα in line 4. The sense is simply that the elements are *suited for* mixture under Love and are *unsuited for* mixture under Strife.

Ἕστερκται in line 5 may either be joined with the subordinate clause by being linked with ἔασιν, or be made the first member of the main clause by being joined with διέχουσι. The first result is most simply achieved by Mugler's ἀλλήλοις ⟨τ'⟩ ἕστερκται.[2] The second result is most simply achieved by Karsten's ἐχθρὰ ⟨δέ⟩. Panzerbieter's ἐχθρὰ ⟨δ' ἄ⟩,[3] revived without acknowledgment by Diels and perpetuated in the latest edition of DK, makes the elements which keep furthest apart from each other different from the elements which are most suited for mingling, contrary to the whole sense of the piece.

[1] 4. 9. 15 (DK 31 A95). I quote this entry at length, partly because it seems that it may in fact be a paraphrase of the present verse, *via* Theophrastus *De sens.* 16. The fragment does not in fact, or at least not primarily and specifically, deal with pleasure and pain. But it is quoted by Theophrastus to illustrate the behaviour of opposites in Empedocles, as part of Theophrastus' criticism of Empedocles' theory of pain. It looks as though Aetius, or his source, may have taken Theophrastus' quotation as part of Empedocles' specific account of pain.

[2] (1951), pp. 61–3.

[3] (1845), coll. 886–7, offered as a second-best to ἐχθρὰ δέ.

An objection to Mugler's supplement may be that it leaves a final short syllable, ἐχθρᾰ́, to be lengthened before πλ in the second half of a foot, *in thesi*. In fragment 85 we have ἡ δὲ φλόξ at the beginning of a line. But there the lengthening occurs within a single compact word group, and for this there are several comparisons in Homer. Lengthening *in thesi* between words which are less tightly compacted, the second of which begins with a mute and a liquid, is much rarer. But there are perhaps sufficient cases to make possible its acceptance in the present fragment, namely:

1. ἀλλᾰ́ πρίν *Il.* 8. 500 and 21. 179; ἀλλᾰ́ πρῶτα *Od.* 16. 402; ἀλλᾰ́ προμνηστῖνοι *Od.* 21. 230; ῥεῖᾰ πρηΰνει Hes. *Theog.* 254.

2. ὄφρᾰ γνῶις *Od.* 22. 373.

3. ὄρσᾰ, γρηῦ *Od.* 22. 395;[1] ἐσσῐ̀ γρηῦ, *Hymn to Dem.* 113.

4. ἄνδρᾰ θνητόν *Il.* 16. 441=22. 179.

5. πυκνᾰ́ Θρηικίου Hes. *Op.* 553.

6. ἐσθλᾰ́ φραζομένωι *Il.* 12. 212.

7. Often before μνηστῆρες: *Od.* 2. 322, 17. 564, 22. 117, 232.

8. Often before χρ: *Il.* 4. 57, 5. 730, 11. 686; *Od.* 13. 363, 14. 385.[2]

An advantage of joining ἔστερκται to the subordinate clause is that it leaves the sense of the second 'half' of the fragment to follow precisely the sense of the first half. In lines 1–3 elements which are harmonious with themselves are (under certain conditions) kept apart. In lines 4 ff. elements which are harmonious with each other are (under certain conditions) kept apart. In both

[1] Herodianus cites ὄρσεο, περὶ κλίσεως ὀνομάτων 2. 645. 33 Lentz.

[2] Most of these examples are at the beginning of a verse. Excluded are word groups which include the particles δέ, τε, κε, ῥα, the personal pronoun or the definite article, as well as cases where ν *ephelkustikon* can be added, and cases where the following vowels can be treated as one long sound or as a short and a long sound, e.g. πλέων.

La Roche has complete lists of lengthening before a mute and a liquid in Homer, *Homerische Untersuchungen* (Leipzig, 1869), pp. 1–42. But La Roche does not distinguish between lengthening in the first half of a foot, where the ear cannot but expect a long syllable, and lengthening in the second half of a foot, where the ear may expect a long or a short syllable. Examples of this latter phenomenon are in fact a tiny proportion of the hundreds of cases cited by La Roche.

cases, on our interpretation, harmony is expressed in the first clause, while separation is expressed in the second clause.

Also, if we accept this interpretation of ἔστερκται, then two delicate stylistic effects come to light.

1. In the first half of the fragment, lines 1–3, unity is expressed in the *main* clause, lines 1–2, and division is expressed in the *subordinate* clause, introduced by ὅσσα, line 3. In the second half of the fragment, lines 4–9, unity is expressed in the *subordinate* clause, which is again introduced by ὅσα, but which now comes first, lines 4–5, while diversity is expressed in the *main* clause, lines 6 ff.

2. Secondly, it may well not be chance that what we have called the second 'half' of the fragment, lines 4–9, is in both its members just twice as long as the first 'half', lines 1–3: two lines (4–5) instead of one (3) for the subordinate clause, and four lines (6–9) instead of two (1–2) for the main clause. In the opinion of the present writer such subtleties are not untypical of the arrangement of Empedocles' verse.[1]

In line 9 Mugler's emendation of ὅτε for ὅτι is quite possibly correct, introducing a temporal notion where later writers saw a logical dependence.[2] No satisfactory emendation has yet been offered for the second half of line 9. Fortunately the more general sense is clear.

It is significant that Love and Strife are introduced only in the second half of the fragment, the half which describes the relation of different elements one to another. This is probably explained by Aristotle's criticism, *Met.* 985 a21–9 quoted above (p. 170), to the effect that Strife is incidentally cause of union in that, in order to separate the mass of elements, it unites each element singly, while Love conversely, in order to unite the different elements with each other, is the cause of separation of individual elements. Now in the second half of fr. 22 Love joins different elements one to another, while Strife separates them. Following Aristotle's line of thought, we might suppose that in the first half of the fragment

[1] P. 116 on the order of words, μέσῃι Φιλότης στροφάλιγγι; p. 140 on the order in which the elements are named; pp. 291–2 on air and aether in fr. 100; p. 322 on Empedocles' use of caesurae; pp. 323–4 on the schematization of verses in fr. 17.

[2] (1951), pp. 61–5; cf. p. 279 above.

Strife joins each element singly, lines 1–2, while Love separates them, line 3. Quite probably Empedocles avoids introducing Love and Strife into the first half of the fragment precisely in order to avoid this complication. And quite probably this is the reason why the second half of the fragment is given greater prominence, by reason of its length, than the first half.

We may translate:

Sun, earth, sky and sea are all of them close fitting each with their own parts, while among mortal things they are made to wander separately from their own parts.[1]

The same is true of things more particularly suited for mixing (*sc.* with one another, cf. the remarks on κρῆσιν above). When they are made alike by Aphrodite, they cling to each other. When they are enemies, they most of all keep furthest apart from each other. In virtue of their birth, by their capacity for mixture, and by the shapes impressed upon them, in every way it is against their nature to come together, and very loth are they to do so. This is at the instigation of Strife, when Strife controls their birth.

CONCLUSION

Empedocles' use of the principle of like to like has been explained in a variety of contradictory ways by modern authors. Burnet, Gomperz and Cornford equate like to like with the power of Strife and make Love responsible for the union of unlike things.[2] Arguing against Gomperz, Kranz makes all 'like to like' the work of Love.[3] Bignone speaks of like to like as 'un principio indipendente e non connesso alla dottrina delle due forze'.[4]

As we have seen, Aristotle in the *Ethics* has attributed to Empedocles a general belief in the desire of like for like. In fr. 62 we see how 'like to like' can describe the activity of Strife. Fire is κρινόμενον and θέλον πρὸς ὁμοῖον ἱκέσθαι. In fr. 22 we see how 'like

[1] Cf. p. 307 on the slight logical difficulty of this idea.

[2] Burnet, *EGP*, p. 233, cf. pp. 244–6. Gomperz (1896), p. 193. Cornford (1912), p. 63. Burnet is criticized by Cherniss, *ACP*, p. 190 n. 193.

[3] (1912), pp. 38–9.

[4] P. 525, expressed less firmly p. 529. Bignone is following Millerd (1908), pp. 36–7; Ferrari (1891), p. 61 and Tannery, *Science hellène*, pp. 317–18.

to like' also embraces the actitivy of Love. For elements that under Strife would be most *unlike*, when they are joined together are *made alike* by Aphrodite, ὁμοιωθέντ' Ἀφροδίτηι. Thus 'like to like' is not to be identified exclusively with the work of Strife nor exclusively with the work of Love, nor yet is it a wholly independent principle. 'Like to like' describes the activity of both Love and Strife. Paradoxical though it may seem, for Empedocles fire to fire and fire to water are both manifestations of the principle that like is attracted to like: for Love, when she unites opposite elements, *makes them alike*.

NOTE 9

THE INTERPRETATION OF FR. 26. 1–2 AND 7

Cf. p. 210 n. 5

ἐν δὲ μέρει κρατέουσι περιπλομένοιο κύκλοιο,
καὶ φθίνει εἰς ἄλληλα καὶ αὔξεται ἐν μέρει αἴσης.
. . .
εἰσόκεν ἓν συμφύντα τὸ πᾶν ὑπένερθε γένηται.

LINE 2: φθίνει AND αὔξεται

Bignone gives a confused account of the opening couplet of fr. 26, whereby apparently an element 'perishes' when it 'increases *sc.* the mass of another element'.[1] This is confusing because 'perish' and 'increase' become different descriptions of a single event. It is also a disadvantage that this interpretation gives no place to the process of separation.

In fact the second line fairly obviously means that the elements '*perish* into one another' when they are mingled, and '*increase*, *sc.* from one another' when they are separated.

In the first part of the fragment this may be simply an account of mixture and separation in general. Thus in lines 1–4 we are told that, by mixing and separating, the elements, though themselves remaining always the same, account for the origin of man and beast. However, in the lines that follow these processes are presented as part of the cosmic cycle. 'Perish' on our interpretation is taken up by line 5, ἄλλοτε μὲν Φιλότητι etc. 'Increase' on our interpretation is taken up by line 6, ἄλλοτε δ' αὖ δίχ' ἕκαστα etc.

Verdenius argues that φθίνει εἰς ἄλληλα means that the elements perish 'with regard to each other'.[2] Verdenius argues that the elements cannot be said to perish *into* one another, because then ἐξ ἀλλήλων would have to be supplied with αὔξεται (which is

[1] Pp. 533–6.
[2] 'Notes on the Presocratics', *Mnemosyne*, series 4, vol. 1 (1948), 12–14.

precisely what we have done), and this Verdenius supposes would be inconsistent with the statement that 'the elements grow each from its own root' in fr. 37,

αὔξει δὲ χθὼν μὲν σφέτερον δέμας, αἰθέρα δ' αἰθήρ.

Fr. 37 in fact supports our interpretation, since αὔξειν or αὔξεσθαι in fr. 37 as on our interpretation of fr. 26 is used for the isolation of a single element. The explanation of Verdenius' puzzle is simply that fire increases fire (fr. 37) because it increases *out of*, i.e. is separated from, a mixture of other elements (fr. 26). The context of fr. 37 is quite likely a cosmic one, which would add to the affinity with fr. 26. For fr. 37 would answer precisely Aristotle's description of the effects of Strife, *Met.* 985 a25–7: ὅταν μὲν γὰρ εἰς τὰ στοιχεῖα διίστηται τὸ πᾶν ὑπὸ τοῦ νείκους, τό τε πῦρ εἰς ἓν συγκρίνεται καὶ τῶν ἄλλων στοιχείων ἕκαστον.[1] Fire is in fact separated from earth and goes to join its like in the formation of whole-natured creatures, fr. 62.

There is essentially the same use of αὔξειν in fr. 110. 4–5,

αὐτὰ γὰρ αὔξει
ταῦτ' εἰς ἦθος ἕκαστον, ὅπη φύσις ἐστὶν ἑκάστωι.[2]

Αὔξειν or αὔξεσθαι in frr. 26, 37 and 110 is comparable with the use of the same verb in fr. 17. 1–2 and 16–17,

τοτὲ μὲν γὰρ ἓν ηὐξήθη μόνον εἶναι
ἐκ πλεόνων.

This, it is true, describes the result of mixture, not of separation. But this is because the one is a different entity from the many and is opposed to the many. To 'perish' is for each element individually to be united with another element, while to 'increase' is for each element individually to be separated. Just the reverse will be true of the one. The one perishes when the many increase, fr. 17. 10: διαφύντος ἑνὸς πλέον' ἐκτελέθουσι. The one 'increases' therefore when the many perish, as in the verses cited from fr. 17.

Aristotle speaks of Empedocles' elements coming together *into* one another, εἰς ἄλληλα τῶν στοιχείων συνιόντων, and equates this

[1] Cf. p. 147 above.

[2] Heidel's emendation of ἄξει for αὔξει is probably unnecessary, *Proceedings of the American Academy of Arts and Sciences*, 48 (1913), 726.

with the destruction of the cosmos, *De caelo* 280a 11–24 (quoted p. 171 above). This therefore supports our equation of mixing and perishing.

The association of mixing and perishing appears again in Lucretius. It is apparently applied to the mixing of the elements under Love to form the Sphere, 1. 759 ff.:

> deinde inimica modis multis sunt atque ueneno
> ipsa sibi inter se; quare aut *congressa peribunt*
> aut ita diffugient ut tempestate coacta
> fulmina diffugere atque imbris uentosque uidemus.

We have already noted that this passage most likely refers directly to Empedocles (pp. 270–1). Lucretius' *aut...aut...* quite likely therefore describes the alternation of the cosmic cycle. In that case the elements 'come together and *perish*' when they are joined by Love into the Sphere. They 'fly apart' *tempestate coacta*, i.e. in the storm that was a feature of Strife's cosmogony.[1]

LINE 1: κρατέουσι

The subject of κρατέουσι in the first line is fairly certainly the elements, since these were the subject of the same verse in fr. 17. 29, and since the elements are the subject of the lines that follow. The subject cannot be Love and Strife alone, as Munding supposes,[2] following Stein. For the subject of κρατέουσι is fairly obviously carried on as the subject of συνερχόμενα and δίχα φορεύμενα in the lines that follow, and what comes together and is drawn apart is distinguished from Φιλότητι and Νείκεος ἔχθει.

Love and Strife may perhaps be included *with* the elements in fr. 17. 29, as Bignone supposes,[3] followed by Jaeger.[4] But they cannot very well be included in the present fragment, as Bignone also supposes, at least not in any very direct or obvious way, because of the implicit distinction from Love and Strife in the lines that follow.[5]

[1] See pp. 268–73 above, especially pp. 270–1.
[2] (1954), p. 140.
[3] P. 533 n. 1.
[4] (1947), pp. 138–9 and 236 nn. 42 and 48.
[5] Aristotle's possible use of the line to describe the rule of Love and Strife is considered in the next section.

Κρατέουσι might be thought to mean that the elements prevail over one another in a general way. During the seasons for example fire prevails for a while in summer, and water in winter. This is essentially Gilbert's interpretation.[1] It is true that such an idea, of a cycle of increase and decline, of victory and defeat, was common in antiquity. The language of some accounts in particular is closely parallel to these verses of Empedocles:

1. Hippocrates:

ἐν μέρει δὲ ἑκάτερον (fire and water) κρατέει καὶ κρατέεται ἐς τὸ μήκιστον καὶ τὸ ἐλάχιστον ὡς ἀνυστόν.[2]

2. Euripides:

> κύκλος γὰρ αὐτὸς καρπίμοις τε γῆς φυτοῖς
> θνητῶν τε γενεᾶι· τῶν μὲν αὔξεται βίος,
> τῶν δὲ φθίνει τε καὶ θερίζεται πάλιν.[3]

3. Lucretius:

> sic aequo geritur certamine principiorum
> ex infinito contractum tempore bellum.
> nunc hic nunc illic superant uitalia rerum
> et superantur item.[4]

Obviously Empedocles must be saying something very broadly like what is said in the passage from the *De victu* and by Euripides and Lucretius. But how can we interpret this cycle of life and death, of victory and defeat, in terms of 'perish' and 'increase', as the context suggests we should?

Were we to adopt Bignone's interpretation of φθίνει and αὔξεται, whereby the element that perishes increases the bulk of another element, we might perhaps suppose that when the elements are mingled the smaller is defeated and the larger prevails. There would then perhaps be the converse implication, that

[1] (1911), p. 206 n. 1.

[2] *De victu* 1. 3 = vol. 6, p. 472 Littré, compared to this passage of Empedocles by Heidel, *A.G.P.* 19 n. F. 12 (1906), 360 n. 81. Some further parallels from the Hippocratic corpus are noted by Fredrich, *Hippokratische Untersuchungen* in *Philologische Untersuchungen*, Heft 15 (Berlin, 1899), pp. 27–9. Cf. also Plato, *Timaeus* 49B7–C7 and Hippolytus, *Ref.* 7. 29. 10–11.

[3] Fr. 415 Nauck, quoted in this connection by Karsten, pp. 196 and 200–1.

[4] 2. 573ff., quoted by Bignone, p. 420, and Karsten, p. 200.

when they are separated, the smaller quantity escapes and so prevails, while the larger is thereby defeated. But this has two disadvantages. First, it would deal only with mixtures of unequal proportions. For which element prevails and which is defeated when two equal elements are fully mixed or fully separated? Secondly, it would mean in effect that an element could be victorious in two ways: either by mixing a smaller amount of another element in with itself, or by separating out from a mixture in which it had been overwhelmed. Equally an element could be defeated in two ways: either by being mixed into a larger amount of something else, or by losing a smaller amount of another element which had been mixed in with it.

'Perish' and 'increase' we have argued mean respectively mixture and separation, and in the present fragment these processes are presented as part of the cosmic cycle. As on other occasions (see e.g. pp. 218–27 above), scholars have in effect been reluctant to take Empedocles seriously, to interpret his words in terms of his own philosophy, and in particular in terms of the cosmic cycle. In the present instance Covotti has made a half-hearted attempt to do so. He writes, 'Ciò significa: nel passare dall'uno ai molteplici elementi si separano prima gli uni, poi gli altri; viceversa, nel passare dai molteplici elementi all'uno si uniscono prima questi, poi quelli. Nell'uno caso, perciò, predominano i primi a separarsi sulla massa ancora indistinta; nel secondo caso, gli ultimi a unirsi sull'incipiente massa indistinta.'[1] This is too complex a meaning for a single pair of verses. It does not in any case preserve any real relation of κρατέουσι with φθίνει and αὔξεται, unless perhaps we suppose φθίνει to mean the last elements to perish into the Sphere, which is too much to read into a single phrase.

It will preserve the connection with φθίνει and αὔξεται, and present a far simpler picture, if we suppose that when the elements '*perish* into one another' they are *defeated*. When the elements '*increase*, *sc.* from one another' they *prevail*. Defeat is the natural connotation of perish. Prevail is the natural connotation of increase. Further, this will mean in effect, on our interpretation of 'perish' and 'increase', that the elements are defeated by Love and prevail when they are separated by Strife. Thus the couplet

[1] (1901), p. 151.

describes in effect the alternation of Love and Strife which the listener will already have been familiar with from frr. 17 and 20 and which is described in the rest of the fragment.[1]

Thus we conclude: not that the individual elements have each a 'turn', as though fire were to rule for a time and then water; but that the processes of mixture and separation, which for the elements represent respectively defeat and victory, follow each other in turn. It is natural to associate defeat for the elements with Love and victory for the elements with Strife. The elements are the 'many'. They prevail therefore through the power of Strife, the principle of separation and of plurality. The elements as the 'many' are opposed to the one. They are defeated therefore at the hands of Love, the principle of unity.

ARISTOTLE'S USE OF LINE 1

Karsten,[2] Diels and Cherniss[3] suppose that Aristotle has drawn on κρατέουσι for a phrase used of the minor alternation, τὸ κρατεῖν καὶ κινεῖν ἐν μέρει τὴν φιλίαν καὶ τὸ νεῖκος.[4] Cherniss thereby accuses Aristotle of distortion in that he has made Love and Strife, and not the elements, the subject of the verb.

Karsten's idea perhaps derives support from Simplicius, who quotes the line when he is commenting on roughly this passage of Aristotle, and at once paraphrases, ὥστε καὶ ἐν μέρει τὸ πᾶν ἠρεμεῖν τε καὶ κινεῖσθαι.[5]

However, Aristotle's κρατεῖν, even if it is a reminiscence of fr. 26, may have no particular significance. Aristotle's reminiscence may be only half-conscious, arising perhaps from the desire to give his phrase an archaic ring.

If on the other hand Aristotle has deliberately used this verse for his description of the minor alternation, this will support our interpretation. For although strictly the elements are the subject of κρατέουσι, the *implication* of the first couplet, on our interpretation, will be that Love and Strife 'prevail' alternately, as the

[1] For the position of frr. 17 and 20 see pp. 224–5 above.
[2] P. 200 (on fr. 17).
[3] *ACP*, p. 175 n. 130.
[4] *Phys.* 252a7–8. Cf. pp. 59–69 and 98–9 above.
[5] *Phys.* 1185. 19 and 20. Simplicius, we may note, uses the phrase for the major alternation, whereas Aristotle has used it for the minor alternation.

elements 'perish into one another' and so are defeated by Love, and 'increase, *sc.* from one another' and so are victorious through Strife.

LINE 7: ὑπένερθε γένηται

The idea that the elements prevail when they 'increase from one another' or separate, and the corresponding implication that they are defeated when they 'perish into one another' or mingle, if we so interpret the first couplet, helps to explain line 7. The elements mingle in line 5 and are separated in line 6. Line 7 tells again how the elements are mingled: they 'grow together as one'. Thereby they 'become below', i.e. they are *defeated* by *Love*.

There is no other instance of ὑπένερθε γένηται used to mean 'is defeated'. But καθύπερθε is not infrequently used to mean 'more powerful than' or 'superior to'.[1] For the general notion of 'suppression' by Love we may compare Love's concealment of the elements in fr. 27.

Diels followed one of Sturz's explanations in referring the line to the Sphere, but without discussing the meaning of ὑπένερθε γένηται.[2] Diels' idea has been taken up by Munding, who to explain ὑπένερθε γένηται relies on a description by Philoponus of the disappearance of the elements during the Sphere.[3]

Bignone takes in effect the opposite view. He explains ὑπένερθε γένηται of the defeat of the elements by Strife.[4] He translates: 'finchè dopo essersi accresciuti nell'unità del tutto, ancora s'inabissino.' 'Ancora' is evidently a silent reversion to Sturz's emendation of εἰσόκεν αὖ for the Aldine εἰσόκεν ἄν. Bignone adds: 'ὑπένερθε γένηται . . . si tratta del ritorno dallo sfero allo stadio della dissoluzione degli elementi'. Bignone is evidently following Mullach, who wrote: 'Quum vero hic versus praecedentis explicationem contineat, commodum habet sensum: *donec quae concreta fuerunt penitus succubuerint.*' The same interpretation of the phrase is given earlier by Ritter.[5] Bignone seems to be followed by Minar, who likewise takes the line as a description of the effects of Strife.[6]

[1] See L.S.J., *s.v.*
[2] (1880), pp. 163–4.
[3] Munding (1954), p. 142; Philoponus, *De gen. et corr.* 19. 6–9.
[4] *Ad loc.* and p. 552.
[5] (1818), p. 439 n. 45.
[6] (1963), pp. 132 and 134.

It is difficult to explain 'defeat' as the defeat of the elements at the hands of Strife, as Bignone tries to do. For, as we have seen, when the elements are separated they 'increase' and so probably 'prevail'. The elements are more likely defeated when they '*perish* into one another' and so are mingled by Love.

Bignone's time sequence is also difficult, if not impossible. For he must translate in effect: 'The elements are drawn apart by Strife until what *had* been grown together as one is overcome by Strife.' But συμφύντα is much more naturally understood not as prior but as subsequent to φορεύμενα: 'The elements are drawn apart by Strife until (the time comes when) they grow together as one and are defeated by Love.'

Minar avoids the difficulty of Bignone's time sequence by referring συμφύντα as well as ὑπένερθε γένηται to increasing Strife. He evidently takes it to mean that *each* element is grown together. The verse, he claims, is paraphrased by Aristotle in this sense, where the word used however is συγκρίνεται.[1] It would be oddly confusing if in fact συμφύντα were used in this line to describe the same process as that described by διαφύντος two lines later.

Our own time sequence may be thought difficult. How can Empedocles say that the elements are subject to increasing Strife, line 6, *until* they form the Sphere, line 7? It may be that δίχα φορεύμενα is meant for once to cover the whole world of separation, increasing Love and increasing Strife. Perhaps more likely, the point is that line 7 describes by implication both increasing Love, ἓν συμφύντα, and total Love, ὑπένερθε γένηται.

LINE 7: MINOR POINTS

1. For εἰσόκεν ἓν,[2] Diels proposed to read εἰσόκ' ἐς ἓν.[3] This is revived without acknowledgment by Cataudella.[4] Cataudella compares Plato, *Rep.* 588c συμπεφυκυῖαι ἰδέαι πολλαὶ εἰς ἓν γενέσθαι. The emendation is plausible, but not essential.

[1] *Met.* 985a25–7, quoted above, p. 147.
[2] Simpl. *Phys.* 33. 25 ms. E, ὃν D, ὃ F, ἂν Aldine.
[3] (1880), p. 163, in the *apparatus criticus* not in the text of *Poet. phil. fragm.*, not in DK.
[4] (1960), p. 128.

2. Τὸ πᾶν may mean either 'the whole' or 'wholly' and it may be construed either with συμφύντα or with γένηται.

Munding chooses the adverbial sense, for which he compares πᾶν fr. 35. 10.[1] More probably τὸ πᾶν is substantival. Diels notes two uses of τὸ πᾶν to mean 'the whole world', frr. 13 and 14, of which the former is specifically said to describe the Sphere.[2] Aristotle also uses τὸ πᾶν, when speaking of Empedocles, to mean 'the whole' and perhaps specifically 'the Sphere'.[3]

Τὸ πᾶν should be construed with γένηται. For this makes the third foot trochaic caesura divide the line according to sense, as it does in every other line of this fragment except line 8. The repeated use of such lines is a frequent device in Empedocles.[4]

This phenomenon has been only partially observed by earlier critics.[5] It is true that trochaic third foot caesurae are present in more than half the verses in Homer. They become even more popular with the Alexandrians, and in later Greek five out of every six verses have such a caesura.[6] But what is peculiar at Empedocles' date is the *continuous* use of these caesurae dividing the line according to *sense*.

The same device is found occasionally elsewhere, most notably in Apollonius Rhodius' song of Orpheus,[7] also Hesiod,[8] probably in Homer.[9]

The use of these verses was no doubt one of the 'splendid poetical conceits' which Aristotle refers to.[10] They will have accounted in part for the incantatory effect of Empedocles' poetry, which is described by Aristotle.[11] We may compare

[1] (1954), p. 142. [2] (1880), pp. 163–4; *De MXG* 976b25–7.
[3] *Met.* 985a25–7, quoted above, p. 147.
[4] Frr. 20, 84, 122 and 123, and perhaps in some others.
[5] Karsten, p. 60; Merzdorf (1874), p. 55; Diels (1880), p. 172 n. 1, (1884), pp. 363–4, *Poet. phil. fragm.*, note on fr. 17; Wilamowitz, 'Die Καθαρμοί des Empedokles', *S.B.B.* (1929), p. 657; Kranz (1949), p. 69; Traglia (1952), p. 85.
[6] References: La Roche, *W.S.* 17 (1895), 165 and 18 (1896), 26; Leeuwen, *Enchiridium dictionis epicae*, Lugduni Batavorum 1894, p. 14 n. 2; Gleditsch, *Metrik der Griechen und Römer*, 3 Auflage *H.K.A.* (1901), pp. 121–2.
[7] *Argon.* 1. 496–518. [8] *Theog.* 108–15, 242–8, 872–80.
[9] *Od.* 23. 267–73 (cf. Leaf on *Il.* 2. 400, where however in the lines noted the division is not always one of sense).
[10] Fr. 70 Rose.
[11] *Ethic. Nic.* 1147a19–22, b11–12; *Rhetor.* 1407a32–7.

Apollonius' description of the enraptured silence of Orpheus' audience even when his song is finished, where by a kind of pathetic fallacy the rhythm of Orpheus' song continues, but with less force, in the description of its effect.[1]

LINE 7 REPEATED IN FR. 17

Wilamowitz noted that line 7 of fr. 26 was missing in the parallel set of verses in fr. 17. 7–13, and suggested that it was misplaced in fr. 26: 'Ich weiss nicht, was 26. 7 in dem Zusammenhange soll.'[2]

In fact the equivalents of lines 7 and 8 were missing in Simplicius' exemplar of fr. 17.[3] Both lines should be restored to fr. 17.

Line 8 is demanded by the sense. It was restored by Bergk,[4] and independently by Karsten.

That line 7 should also be restored to fr. 17 was suggested by Preller,[5] but rejected by Tischer.[6] More recently, the restoration of line 7 is suggested, but apparently rejected, by Zafiropulo.[7]

Line 7 is not demanded by the sense, and it might be thought that mention of the Sphere, of total unity, is deliberately reserved for a later stage in the poem. But this consideration seems to me to be ruled out by a striking and no doubt conscious schematization of verses which appears in fr. 17 if we restore both lines from fr. 26. Four times pairs of lines describing increasing Love and increasing Strife are divided by a line describing some other feature of the cycle, thus:

δίπλ' ἐρέω· τοτὲ μὲν γὰρ ἓν ηὐξήθη μόνον εἶναι
ἐκ πλεόνων, τοτὲ δ' αὖ διέφυ πλέον' ἐξ ἑνὸς εἶναι.
δοιὴ δὲ θνητῶν γένεσις, δοιὴ δ' ἀπόλειψις·
τὴν μὲν γὰρ πάντων σύνοδος τίκτει τ' ὀλέκει τε,
ἡ δὲ πάλιν διαφυομένων θρεφθεῖσα διέπτη.
καὶ ταῦτ' ἀλλάσσοντα διαμπερὲς οὐδαμὰ λήγει,
ἄλλοτε μὲν Φιλότητι συνερχόμεν' εἰς ἓν ἅπαντα,
ἄλλοτε δ' αὖ δίχ' ἕκαστα φορεύμενα Νείκεος ἔχθει,

[1] Lines 512–18. [2] (1930), p. 245. [3] *Phys.* 158. 1; *De caelo* 141. 1, 293. 25.
[4] (1836), p. 203, reprinted (1886), vol. 2, p. 3, repeated (1837), 448.
[5] 'Zur Kritik der Fragmente des Empedocles', *Z.A.W.* (1837), no. 18, col. 154.
[6] (1843), pp. 25–8. Tischer also rejects Bergk's restoration of line 8.
[7] (1953), pp. 240–1.

8a ⟨εἰσόκεν ἓν συμφύντα τὸ πᾶν ὑπένερθε γένηται.
9 οὕτως ἦι μὲν ἓν ἐκ πλεόνων μεμάθηκε φύεσθαι⟩
10 ἠδὲ πάλιν διαφύντος ἑνὸς πλέον' ἐκτελέθουσι,
τῆι μὲν γίγνονταί τε καὶ οὔ σφισιν ἔμπεδος αἰών·
ἦι δὲ διαλλάσσοντα διαμπερὲς οὐδαμὰ λήγει,
ταύτηι δ' αἰὲν ἔασιν ἀκίνητοι κατὰ κύκλον.

CONCLUSION

We conclude that the first half of fr. 26 should be interpreted as follows:

They (the elements) have their turn to prevail as the wheel of time comes round. They both perish into one another (i.e. are mixed and defeated) and increase (*sc.* from one another, i.e. are separated and prevail): each process has its share in turn. For these are themselves,[1] but running through one another they become men and other kinds of animal. This they do, at one time as they come together through Love (i.e. perish into one another) to form a single world, and then at another time as they are drawn each of them apart by the enmity of Strife (i.e. increase from one another), until (the time comes when) they grow together as one and the whole is defeated (*sc.* by Love).

[1] Line 3, αὐτὰ γὰρ ἔστιν ταῦτα. I take the meaning of this formula to be that the elements are *themselves*, as opposed to other things which are *not themselves*, in the sense that they are made from the elements. Karsten also translated 'ipsa enim ea sunt', without explanation. According to Platt, Karsten's translation 'ruins the sense', 'Notes on Empedocles', *Journal of Philology*, 24 (1896), 246. Platt proposed 'eadem'. Pearson (1909), p. 50, offers 'they exist of themselves'. Diels, DK *ad loc.*, translates 'nur diese *vier Elemente* gibt es'; and Kranz 'nur diese *Elemente* sind'.

NOTE 10

THE IDENTITY OF THE 'DAIMONES' IN FR. 59

Cf. p. 235 n. 1

αὐτὰρ ἐπεὶ κατὰ μεῖζον ἐμίσγετο δαίμονι δαίμων,
ταῦτά τε συμπίπτεσκον, ὅπηι συνέκυρσεν ἕκαστα,
ἄλλα τε πρὸς τοῖς πολλὰ διηνεκῆ ἐξεγένοντο.

INTRODUCTION

The *daimones* in this fragment have been thought to be:

1. Love and Strife 'mixed' in conflict.[1]
2. The elements.[2]
3. Altogether implausibly, Love mingled with the Sphere or with the world.[3]

Prima facie the *daimones* in fr. 59 are likely to be the same as the only other *daimones* which Empedocles speaks of, namely those in fr. 115. These are most likely fragmentations of Love imprisoned in mortal bodies, as Cornford suggested.[4] Hence in the present fragment the point would be that as the power of Love in the world increases, the pieces of Love in separate limbs mix with one another, and so there are formed more harmonious creatures, monsters and later men and women.

[1] Diels. Bignone, in his notes on fr. 59 and p. 414. Frequently since, e.g. Capelle (1935), p. 203 n. 3; Freeman (1946), p. 197 n. b (where A 59 is a misprint for B 59); Kranz (1949), pp. 43 (where fr. 99 is a misprint for fr. 59) and 363 n. 37; and Zafiropulo (1953), p. 152.

[2] Peyron (1810), p. 49. Karsten. Zeller, ZN, p. 987 n. 1, cf. pp. 961 n. 1, 1006 n. 3, 1011. Überweg, some earlier editions and the English translation of *Grundriss der Geschichte der Philosophie* (1st edn Berlin, 1863–6): 2nd edn Theil 1 (1865), p. 59, English translation (London, 1872), [vol. 1], p. 62. Knatz (1891), p. 9. Raven (1957), p. 337.

[3] Boussoulas (1958), pp. 138 and 143 n. 8.

[4] In his (unpublished) lecture notes, cf. (1912), pp. 237–40, and *Cambridge Ancient History*, vol. 4 (1926), pp. 563–9.

We consider first some disadvantages connected with earlier interpretations of fr. 59, and then we turn to consider the evidence for Cornford's interpretation of the nature of the *daimon*.

EARLIER INTERPRETATIONS OF FR. 59

It is an advantage of the interpretation we have suggested for fr. 59 that it gives μίγνυσθαι its normal sense. It is a disadvantage of the first interpretation cited above, whereby the *daimones* are Love and Strife, that it requires μίγνυσθαι to be taken in a hostile sense. The verb can be used alone in a hostile sense.[1] But more often an additional phrase seems to be required, ἐν δαΐ *Il.* 13. 286, ἐν παλάμηισι 21. 469.

Further, if μίγνυσθαι means here 'do battle', then the qualifying phrase κατὰ μεῖζον creates a difficulty. For this phrase would not naturally mean as the conflict between Love and Strife *continues*. The phrase is more likely to mean 'increase', 'grow stronger'. And yet there is no immediate reason why creatures should be joined together because the *conflict* of Love and Strife grows stronger. It is an increase of *mixture* which would lead separate limbs to join together as monsters.

The identification of the *daimones* with Love and Strife does not necessarily have, as Karsten and probably others have supposed, the support of Simplicius, who interjects, between the first and second lines of the fragment, *De caelo* 587. 21: ὅτε τοῦ νείκους ἐπεκράτει λοιπὸν ἡ φιλότης.

Simplicius' remark is not necessarily intended as a strict paraphrase of the first line. It could be meant to show the relevance of that line, and of our interpretation of it, to the controversy with Alexander upon which Simplicius is engaged, *De caelo* 586. 25–587. 26. Simplicius' position is that Love as well as Strife is active in the sublunary world. Therefore animal parts born ἐπὶ τῆς φιλότητος are not, as Alexander supposes, forms in a supra-sensible world, where Love is in sole control. They are mortal creatures born on this earth through the conflict of Love and Strife, but at a time when Love's power is increasing (cf. pp. 200–

[1] E.g. *Il.* 4. 456. At *Od.* 5. 317 the subject is winds, and the sense may be partly literal.

2 above). Thus the purpose and context of Simplicius' quotation would make it quite possible for him to point out that 'when *daimon* mingled more with *daimon*', in the sense of 'when Love mingled more with Love', *implies* 'when Love was prevailing over Strife'.

However it may be that Simplicius' note is intended to paraphrase the line in the modern sense, as describing Love and Strife locked in conflict. Even so, Simplicius' authority on this point would not be overriding. Simplicius knew the physical poem well (see pp. 150–1 above). But his knowledge of the *Katharmoi*, and so perhaps his understanding of *daimones*, appears to have been meagre in the extreme. From the religious poem he quotes only fr. 115. 1–2, *Phys.* 1184. 9. The end of the same fragment was familiar in antiquity (see p. 203 n. 4 above).

The other two interpretations, listed as 2 and 3 above, preserve the normal use of μίγνυσθαι, but give an implausible sense to the word *daimon* itself.

It is unlikely that the elements could be described as *daimones*, as on the second interpretation listed above. It is true that each element is given the name of a god in fr. 6, and that fire is called Hephaestus in frr. 96 and 98. But in fr. 115, the only other place in Empedocles where the word occurs, the *daimones* are precisely contrasted to the elements. Sun, land, sea and aether hate the *daimon* and spit him out from one to the other.[1]

Love and Strife are perhaps sufficiently similar, as forces that control the elements, to be called each of them the same thing, a *daimon*. But it is unlikely, particularly given the juxtaposition, δαίμονι δαίμων, that the two *daimones* could be altogether different things, as Boussoulas supposes, one being Love and the other being the world or the Sphere.

[1] This argument presupposes, as several other commentators have done, that the coincidence between the four ῥιζώματα of the physical poem and the four cosmic masses named in fr. 115 of the *Katharmoi* is not entirely accidental. Once this intrinsic similarity has been allowed, there is of course room for qualification. Thus Thomas writes: 'Die Begriffe (of fr. 115) sind nicht mehr mit den Elementen identisch, sondern bezeichnen Stationen sterblicher Geschöpfe als Wohnungen des wandernden Daimon', Ἐπέκεινα, *Untersuchungen über das Überlieferungsgut in den Jenseitsmythen Platons*, dissertation of München, published at Würzburg (1938), p. 117.

THE NATURE OF THE 'DAIMON'

It is a strength of the interpretation which we have suggested that it aims at giving *daimon* in fr. 59 precisely the meaning which, on Cornford's interpretation, it has in fr. 115. This strength may seem to some a weakness. Thus Solmsen writes emphatically against importing the *daimon* of the *Katharmoi* into the physical poem, in a rightly adverse review of Reiche.[1]

Solmsen writes, not specifically with reference to fr. 59:

> The *daimon*-soul may well have been essential for Empedocles' doctrine of transmigration as set forth in the *Katharmoi*. How far the outlook of this poem agrees with that of the *Peri Physeos* is a much debated question, but whatever view we may take of it, we have no right to import the concept of the *daimon* from the one work into the other. Nothing in the testimonies or fragments of *Peri Physeos* gives the slightest support or encouragement to such an attempt; in this work the kinship of all beings rests on entirely different principles of a more physical type.

Detienne voices similar thoughts, 'Les démons au contraire, ne semblent pas faire partie de l'univers du Περὶ φύσεως: il n'est pas question, dans les fragments que nous avons de l'un et de l'autre poème, de leur substance physique'.[2]

The supposed divorce between the *Katharmoi* and the physical poem has of course been frequently emphasized.[3] It would be outside the scope of the present study to attempt to deal with the whole question of the relation between the two poems. Here we shall attempt to isolate the question of the *daimon*, to see if there is in fact any bar to interpreting fr. 59 in the light of the *daimones* of the *Katharmoi*.

Detienne says that there is no question of the 'substance physique' of the *daimones*. Solmsen says that in the physical poem 'the kinship of all beings rests on entirely different principles (from those in the *Katharmoi*) of a more physical type'. Neither criticism will apply if Cornford's view is accepted that the *daimon*

[1] *A.J.P.* 84 (1963), 92; Reiche, *Empedocles' mixture, Eudoxan astronomy and Aristotle's connate pneuma* (Amsterdam, 1960).

[2] 'La "démonologie" d'Empédocle', *R.E.G.* 72 (1959), 5.

[3] E.g. Zeller, ZN, especially pp. 1004–6; Nestle, 'Der Dualismus des Empedokles', *Philologus*, 65 n.F. 19 (1906), 545–57, reprinted in *Griechische Studien* (Stuttgart, 1948), pp. 151–63.

of the *Katharmoi* is a piece of Love. For Love is pretty obviously the source of harmony and kinship in the physical poem (cf. p. 125 above). This then will answer Solmsen's criticism. Love is also a 'substance physique' in that she controls the working of the elements, and has position, 'in the middle of the whirl' fr. 35. 4, and shape, 'equal in length and breadth' fr. 17. 20. This therefore will answer Detienne's criticism.

Cornford's view of the nature of the *daimon* has been reproduced by Raven.[1] It has been shared by Long[2] and Kahn.[3] Long's version was rejected by Vlastos[4] and on patently inadequate grounds by Reiche.[5]

The discussion has not been of a very satisfactory kind, as the remarks quoted above from Detienne and Solmsen perhaps serve to indicate. Vlastos, in the article cited, raises one specific objection to Cornford's theory which is perhaps worth brief consideration. He asks, 'How does he (the *daimon*) think the thoughts of Love when he has nothing to think with?' This apparently simple objection is in fact somewhat complex. It can be interpreted, and answered, in three ways.

1. If Vlastos refers to τῇι τε φίλα φρονέουσι in fr. 17. 23, then the question cannot be dissociated from the second half of that line, καὶ ἄρθμια ἔργα τελοῦσι. The line simply describes the activity of Love among men. If we wish to express this activity precisely in terms of Vlastos' question, then the answer will be that Love as the *daimon* acts and thinks with the bodies of men. It is because of the Love that is in them that men think friendly thoughts and act harmoniously.

2. If, on the other hand, Vlastos wishes to isolate the notion of thought, then the answer is that by Love we 'see' Love. For Vlastos is misleading when he remarks that 'the fragments...always treat mental processes as functions of the ratio not of Love-Strife but of earth-water-air-fire'. Fr. 109, which deals with perception,[6] says that by earth we see earth, by water water, by aether aether

[1] (1957), pp. 358–61. [2] (1949), pp. 142–58.
[3] 'Religion and natural philosophy in Empedocles' doctrine of the soul', *A.G.P.* 42 (1960), 3–35. There was also a brief identification of Love and the soul by Clark (1929), pp. 36–7.
[4] 'Theology and philosophy in early Greek thought', *P.Q.* 2 (1952), 121.
[5] (1960), p. 14 n. 1. [6] Vlastos' 'mental' is a dubious qualification.

and by fire fire. It then concludes precisely that by Love we see Love and by Strife Strife.

3. If, finally, Vlastos refers to the discarnate *daimon*, then the answer, if it has to be supplied, would still presumably be that the *daimon* 'thinks the thoughts of Love' with Love. However, the question would probably not have arisen for Empedocles quite in Vlastos' form. For we have already had occasion to note that Empedocles probably does not think of god's blessedness (in the earlier case the blessedness of the Sphere) in terms of the thoughts of god (pp. 144–5). Much the same would probably be true of the *daimon*. It is only a later age which sees discarnate happiness emphatically in terms of thought.

FRAGMENT 115

On the positive side, the simplest evidence for Cornford's view is fr. 115. The primary inhabitants of this fragment are: the *daimones*, the four cosmic masses, and Strife. Strife and the four cosmic masses have their obvious equivalents in the physical poem. The *daimones* therefore one may expect to be Love, the only other primary inhabitant of the physical poem.

Two passages from Plutarch and a passage from Aristotle offer some confirmation for this view.

PLUTARCH

1. Cornford, in his (unpublished) lecture notes, recalls a passage from the end of Plutarch's *De exilio*, 607C–E. After quoting lines from fr. 115 Plutarch goes on to speak as it were in the person of Empedocles. He assures his audience that the soul's true substance is not αἷμα nor πνεῦμα συγκραθέν. From these the body is made, earth-bound and mortal. The soul comes hither from elsewhere. It is a stranger and an exile in its present place.

The explicit denial that the soul is blood may not come from Empedocles. It is perhaps more likely after Critias had said that the soul was blood,[1] and after Empedocles' αἷμα περικάρδιον in fr. 105 had been interpreted in a similar sense.[2] Equally, πνεῦμα

[1] Arist. *De anima* 405b5–8. [2] Aet. 4. 5. 8 (DK 31A97).

συγκραθέν is probably taken from Aristotle's theory of σύμφυτον πνεῦμα.[1]

But Plutarch's use of these later ideas does not deprive his passage of its main point. Plutarch evidently did not feel that Empedocles' physical theories excluded the presence of a transmigrating soul, as Zeller, for example, supposes must have been the case.[2]

2. Elsewhere, as Cornford notes[3], Plutarch offers some indication of the identity of this transmigrating soul. In the *De tranquillitate animi* Plutarch writes, 474B:

οὐ γάρ, ὡς ὁ Μένανδρός φησιν,

ἅπαντι δαίμων ἀνδρὶ συμπαρίσταται
εὐθὺς γενομένωι, μυσταγωγὸς τοῦ βίου
ἀγαθός,

ἀλλὰ μᾶλλον, ὡς Ἐμπεδοκλῆς, δίτταί τινες ἕκαστον ἡμῶν γινόμενον παραλαμβάνουσι καὶ κατάρχονται μοῖραι καὶ δαίμονες.

Plutarch then immediately quotes Empedocles' own description of five pairs of contrasting *daimones*, fr. 122:

ἔνθ' ἦσαν Χθονίη τε καὶ Ἠλιόπη ταναῶπις,
Δῆρίς θ' αἱματόεσσα καὶ Ἁρμονίη θεμερῶπις,
Καλλιστώ τ' Αἰσχρή τε, Θόωσά τε Δηναίη τε,
Νημερτής τ' ἐρόεσσα μελάγκουρός τ' Ἀσάφεια.

Finally, Plutarch reveals to us the function of these *daimones*. They are the source in us of emotions good and bad:

ὥστε τούτων ἑκάστου σπέρματα τῶν παθῶν ἀνακεκραμένα δεδεγμένης ἡμῶν τῆς γενέσεως καὶ διὰ τοῦτο πολλὴν ἀνωμαλίαν ἐχούσης etc.

The *daimon* who takes over the soul of the new-born child and stays with him throughout his life, guarding and directing his steps, is a familiar being throughout later antiquity. The crucial question for the reconstruction of Empedocles is how far the *daimones* described by Plutarch, who take over the new-born child and determines its character for good and ill, are likely to be the same as the *daimon* who speaks to us from fr. 115: τῶν καὶ ἐγὼ νῦν εἰμί. An implicit distinction, or rather a lack of identifica-

[1] For this theory see Peck, Loeb edition of the *De gen. anim.* (1943), pp. 576–93. [2] ZN, pp. 1004–6. [3] (1912), p. 239 n. 1.

tion, between one's *daimon* and one's 'self' is characteristic of earlier thought. Thus Gernet writes of the *daimon*, not in Empedocles, as 'à la fois hors de l'individu et en lui'.[1] More recently Kahn writes to the same effect.[2] Pindar's αἰῶνος εἴδωλον, fr. 131 b, which survives the body's death and which sends our limbs dreams of the after life, is 'asleep when the body is awake'. It is not therefore quite the same as what we might think of as our conscious self. But the purpose of Heraclitus' fragment 119, ἦθος ἀνθρώπωι δαίμων, appears to be to abolish this distinction: to identify a man's character in a broad sense, his nature, with his *daimon*.[3] The same process appears in Plato. In the *Phaedo* the *daimon* who accompanies the dead soul to its punishments in the underworld had chosen the soul, 107D–E:

> λέγεται δὲ οὕτως, ὡς ἄρα τελευτήσαντα ἕκαστον ὁ ἑκάστου δαίμων, ὅσπερ ζῶντα εἰλήχει, οὗτος ἄγειν ἐπιχειρεῖ εἰς δή τινα τόπον, οἳ δεῖ τοὺς συλλεγέντας διαδικασαμένους εἰς Ἅιδου πορεύεσθαι μετὰ ἡγεμόνος ἐκείνου ὧι δὴ προστέτακται τοὺς ἐνθένδε ἐκεῖσε πορεῦσαι.

In the *Republic*, 617D–E and 620D–E, this is carefully and emphatically corrected to the fact that the dead soul chooses its *daimon*, and not *vice versa*. Finally, in the *Timaeus*, 90A–D, the *daimon* which god ἑκάστωι δέδωκεν is virtually identified with the immortal part of the soul, the νοῦς. It seems likely that when in fr. 115 Empedocles writes τῶν (*sc.* δαιμόνων) καὶ ἐγὼ νῦν εἰμί he is in effect following the more developed conception of the *daimon*, as it appears in Heraclitus and in Plato's later mythical passages, that is, the conception of the *daimon* which would virtually identify one's *daimon* and one's 'self'. If Empedocles *is* his *daimon*, then it would seem unlikely that there is room for any great divergence between Empedocles or his *daimon* and the powers, said to be δαίμονες, which in Plutarch take over the newborn child and determine its character for good and ill.[4]

[1] *Recherches sur le développement de la pensée juridique et morale en Grèce* (Paris, 1917), p. 319. [2] *A.G.P.* 42 (1960), 12–14.

[3] On the interpretation of this fragment, see Guthrie (1962), p. 482.

[4] Here and throughout the present discussion I qualify my use of the word 'self', since ancient and modern notions of self, as individuality or as personality, are widely divergent, and since the development of the ancient conception of the self is closely bound up with the problem under discussion, the nature of the *daimon*. To attempt any closer analysis of the

If these associations are allowed, then the troubles about the nature of the *daimon* are effectively at an end. For two of the μοῖραι καὶ δαίμονες listed in the verses quoted by Plutarch are Δῆρις αἱματόεσσα and Ἁρμονίη θεμερῶπις. These two Plutarch tells us in another place are the same as the cosmic gods, Love and Strife, *De Is. et Os.* 370D–E. Probably the other pairs of *daimones* are manifestations of the same two forces. Even in the physical poem Empedocles is evidently reluctant to commit himself to a single pair of names for his two gods. Love is called variously Φιλότης,[1] Ἀφροδίτη,[2] Ἁρμονίη,[3] Κύπρις,[4] and Στοργή.[5] She is also said to be the same as the goddess whom people call Γηθοσύνη and Ἀφροδίτη.[6] Strife is called Νεῖκος,[7] κακαὶ Ἔριδες[8] and Κότος.[9]

We conclude therefore that the μοῖραι καὶ δαίμονες which in the *De tranquillitate animi* take possession of the new-born child and determine its character for good and ill are probably the same as the *daimones* which have been driven from the company of the gods in fr. 115, and that these are probably the same as the soul which in the *De exilio* 'comes hither from elsewhere'. The identity of the *daimones* is revealed in the *De tranquillitate animi*, where the μοῖραι καὶ δαίμονες prove to be various manifestations of Love and Strife.

Against this conclusion it may perhaps be objected that the correlation of Plutarch's two passages, from the *De exilio* and from the *De tranquillitate animi*, would make the transmigrating soul a piece of Love *and* Strife, whereas in fr. 115 Empedocles tells us that he is a *daimon* who has 'trusted to Strife', line 14, as if Strife were something other than himself. Detienne has an implicit answer to this when he writes, commenting on fr. 115, 'Il faut se souvenir qu'un même individu peut à la fois être possédé par un démon qui le pousse à commettre un crime et qui s'identifie à lui – si bien que le coupable devient δαίμων – et en même temps être distinct de ces puissances mythiques qui sont la cause de son crime'.[10] We have suggested that Empedocles has

ancient conception of the 'self' would be beyond the bounds of the present study.

[1] Fr. 17. 7 *et alib.*
[2] Fr. 22. 5 *et alib.*
[3] Fr. 27. 3 *et alib.*
[4] Fr. 73. 1 *et alib.*
[5] Fr. 109. 3.
[6] Fr. 17. 24.
[7] Fr. 17. 8 *et alib.*
[8] Fr. 20. 4.
[9] Fr. 21. 7.
[10] (1959), p. 16.

taken a more developed view of the *daimon* than that described by Detienne, and that he has virtually identified his *daimon* and his 'self'. But it could well be that this identification is true primarily of the *daimon* which is a part of Love; while the attitude described by Detienne could well cling to Empedocles' conception of his relation to Strife. In simple terms this will mean that the *daimon* of fr. 115 is a manifestation of a part of Love, but has been contaminated as a result of its fall by a piece of Strife: the bliss described in fr. 147 will follow when we have freed ourselves of this contamination.

Finally, we may observe that there are other powers, similar to the *daimones* of fr. 115, who lurk behind other fragments of the *Katharmoi*. Porphyry speaks of ψυχοπομποὶ δυνάμεις who announce their arrival in the cave.[1] According to Porphyry it is a female *daimon* who clothes the souls with their alien garment of flesh in fr. 126.[2] The ψυχοπομποὶ δυνάμεις and the female *daimon* of fr. 126 may again be manifestations of Love or Strife; but they need not be strictly identical with the *daimones* of fr. 115. For the *daimones* of fr. 115 are probably the beings who are *led* into the cave, and who are *given* their garment of flesh. This bifurcation need cause no alarm, for there is a similar division of labour in Plato. In the passage quoted from the *Phaedo*, 107D–E, the *daimon* who has taken charge of the living soul (and who, we have suggested, will later become identified with the 'self') is again in addition to two other powers, ἡγεμόνες, one of whom guides us from this world to the next, and the other of whom will lead us back to this world again.

ARISTOTLE

Aristotle considers earlier theories of the soul under three heads: as source of movement, 403b28–404b8, as seat of perception, 404b8–407b26, and as the body's harmony, 407b27–408a30. It is important to notice that these categories give no place to a transmigrating *daimon*. There need be no surprise therefore that in his analysis Aristotle makes no mention, at least no explicit mention,

[1] Fr. 120, *De antro nymph.* 8, p. 61. 19–21 Nauck.
[2] Fr. 126, Stob. *Ecl.* 1. 49. 60.

of Plutarch's soul which 'comes hither from elsewhere' and is not a part of the body. Largely under Plato's influence, Aristotle sees soul in terms primarily of sensation or cognition and movement. The notion of the soul as a harmony is a concession to earlier thinking, which in fact bears some resemblance to Aristotle's own theory of soul as form. But a transmigrating *daimon*, whose function is not primarily cognitive or kinetic, has no obvious foothold in Aristotle's discussion.[1]

In fact, Empedocles is not mentioned at all under Aristotle's first head. In the second grouping Empedocles is credited with the theory that the soul is made out of all the elements, and that each element is a soul. This is easily understandable in the light of fr. 109, which Aristotle quotes to prove his point, and of Empedocles' theories of perception in general.[2] It is in the third grouping that Love as the soul makes a fleeting appearance.

There is a theory, Aristotle tells us, 408a17–18, that the τῆς μίξεως λόγος is ἁρμονία καὶ ψυχή. Aristotle continues, a18–23:

ἀπαιτήσειε δ' ἄν τις τοῦτό γε καὶ παρ' Ἐμπεδοκλέους· ἕκαστον γὰρ αὐτῶν (the bodily parts) λόγωι τινί φησιν εἶναι· πότερον οὖν ὁ λόγος ἐστὶν ἡ ψυχή, ἢ μᾶλλον ἕτερόν τι οὖσα ἐγγίνεται τοῖς μέλεσιν;[3] ἔτι δὲ πότερον ἡ φιλία τῆς τυχούσης αἰτία μίξεως ἢ τῆς κατὰ τὸν λόγον, καὶ αὕτη πότερον ὁ λόγος ἐστὶν ἢ παρὰ τὸν λόγον ἕτερόν τι;

Whether Love is the cause of chance mixture, or only of proportionate mixture, is incidental. This is part of Aristotle's objection that Empedocles has replaced οὐσία and γένεσις with blind, mechanical processes.[4] The question reappears here because only if we answer, as Aristotle supposes Empedocles would answer, that 'Love is cause of proportionate mixture only', can we then go on to ask, 'Is Love the proportion itself or something other than the proportion?'

[1] Empedocles' *daimon* is not *primarily* cognitive. It is true that in fr. 129 transmigration brings knowledge of past lives, and that the blood which is thought, fr. 105, is an equal or nearly equal mixture of all four elements under the influence of Love, fr. 98. But fr. 109 makes it clear that Empedocles' theory of perception is centred rather on his theory of the elements and of Love and Strife, and not primarily or exclusively on the notion of Love as a transmigrating *daimon*.

[2] See chiefly Theophrastus, *De sens.* 7–24.

[3] μέλεσιν CSUV. μέρεσιν EWXy; Ross, Jannacone, Budé 1966.

[4] See *De gen. et corr.* 333b12–20.

If therefore we put this middle question to one side, we are left with identical questions asked of Love and of the soul:

A. πότερον οὖν ὁ λόγος ἐστὶν ἡ ψυχή –

B. αὕτη (*sc.* ἡ φιλία *qua* αἰτία τῆς κατὰ τὸν λόγον μίξεως) πότερον ὁ λόγος ἐστίν –

A 1. ἢ μᾶλλον ἕτερόν τι οὖσα ἐγγίνεται τοῖς μέλεσιν;

B 1. ἢ παρὰ τὸν λόγον ἕτερόν τι;

This collocation of Love and the soul is in itself significant for our thesis. It is still more significant if we consider the answer to Aristotle's question. Aristotle fails to appreciate that for Empedocles, who has no understanding of Aristotelian λόγος or εἶδος, Love is both the proportion in which the elements are mixed and herself in some way a part of the mixture. The answer to Aristotle's question will be therefore that Love is both the τῆς μίξεως λόγος and παρὰ τὸν λόγον ἕτερόν τι. In that case Aristotle's criticism will lead us to suppose that Love ἕτερόν τι οὖσα ἐγγίνεται τοῖς μέλεσιν.[1]

With Aristotle's 'answer' we may compare Plutarch's phrase from the *De exilio*, τῆς δὲ ψυχῆς ἀλλαχόθεν ἡκούσης δεῦρο. And we may remember the nature of the *daimones* who in the *De tranquillitate animi* ἕκαστον ἡμῶν γινόμενον παραλαμβάνουσι καὶ κατάρχονται.

CONCLUSION

It seems likely therefore that Cornford's view of the *daimones* of the *Katharmoi* as fragmentations of Love has the support of Aristotle and Plutarch. In that case there will be no obvious bar to interpreting the *daimones* of fr. 59 in the same sense. As Love's power in the world increases, the *daimones*, the pieces of Love in separate animal parts, join together to form monsters and later men and women.

[1] This argument is derived essentially from Cornford (1912), p. 235.

I do not say that Love is precisely an ingredient of the mixture. In fr. 96, which describes the composition of bone, it is probably intended that earth, water and fire together make up all the eight parts of which bone is formed. Love's presence as in some way both the proportion and a part, but not an ingredient, of the mixture reflects the inability of any Presocratic thinker to distinguish fully what we may call an 'abstraction' from an extended substance, cf. above, p. 241 n. 3.

BIBLIOGRAPHY

This bibliography aims to include all books and articles devoted exclusively to Empedocles from Sturz's edition in 1805 to December 1965, and to err on the side of generosity in including pages on Empedocles from other works. It excludes translations of modern works, most reviews, articles on Empedocles in some more general works of reference, and one or two items whose interest is primarily post-classical. Also omitted are discussions and editions of lyric verse which embrace Empedocles in virtue of the couplet attributed to him by Diogenes Laertius, 8. 65. Other omissions are unintentional.

The list is arranged chronologically, and is followed by an alphabetical list of authors' names. When a work has appeared more than once, or in more than one form, all details are given under the date of the first edition, and a cross-reference only is provided under the date of a more recent or of a final edition. Pagination and place of publication are given only for the later edition. Simple reprintings of books are not usually included; but I have tried to include details for reprintings of articles.

In the hope of making the whole compilation more easily digestible, an asterisk has been placed against entries which are of a certain scope and of some lasting interest, while two asterisks have been placed against the fifteen or so most valuable studies. As well as this, short critical notes are added where they are likely to be helpful; and, where relevant, references are given at the end of an entry to the pages of the present work on which the item in question has been cited. Modern writers who have been cited in the present work, but who do not qualify for a place in the bibliography (e.g. Ross in his editions of Aristotle), are listed in the general index.

**1805 STURZ, Friedrich Wilhelm. *Empedocles Agrigentinus, de vita et philosophia eius exposuit carminum reliquias ex antiquis scriptoribus collegit recensuit illustravit praefationem et indices adiecit M.F.G.S.* Literis et sumtibus Goeschenii, Lipsiae. Pp. 703.

Some copies are divided at p. 341 into two volumes with consecutive pagination. In some versions volume two has the additional title *Commentatio de Empedoclis vita et philosophia praeeuntibus scriptoribus antiquis*. In other cases this additional title is placed as a preliminary title to the whole work.

Before Sturz, there had been a collection of some 190 verses in Ποίησις φιλόσοφος. *Poesis philosophica, vel saltem, reliquiae poesis philosophicae,*

Empedoclis, Parmenidis, Xenophanis, Cleanthis, Timonis, Epicharmi. Adiunctae sunt Orphei illius carmina qui à suis appellatus fuit ὁ θεολόγος. *Item, Heracliti et Democriti loci quidam, et eorum epistolae.* Anno M.D. LXXIII. excudebat Henr. Stephanus. Cum privilegio Caes. Maiestatis. [Geneva.] Empedocles, pp. 17–31. In some copies there are added a few notes and emendations on Empedocles by Scaliger, under the heading, p. 216, 'In Empedoclis et aliorum carmina notae Iosephi Scaligeri'. A body of unpublished material by Scaliger on Empedocles, from the library of the University of Leyden, is described by Karsten in the prefaces to his works on Empedocles and Parmenides.

Sturz led up to his edition with an article, 'Animadversionum in Empedoclis carmina specimen I', *Commentarii Societatis Philologicae Lipsiensis*, vol. 1, Lipsiae et Plaviae 1801, pp. 24–34. 'Specimen II', *ibid.* pp. 262–74.

This was answered by Philippus Buttmann, 'Observationes in Cl. Sturzii Empedoclea', *Commentarii Societatis Philologicae Lipsiensis*, vol. 4 particula 1, 1804, pp. 31–43.

On rest and movement, 6. Weight, 34. Fr. 35, 109, 113, 118. General interpretation of the cosmic cycle, 157. Emendation of Aetius 2. 4. 8, 179. Fr. 20, 218, 219, 226. Φιν fr. 30. 3, 275. Emendation of fr. 26. 4, 280. Fr. 26. 7, 320.

1805 ff. HEGEL, Georg Wilhelm Friedrich. *Vorlesungen über die Geschichte der Philosophie.*

These lectures were first delivered in 1805, and at intervals from then until 1831. They were first published as vols. 13–15 (1833–6) of Hegel's *Werke*, edd. Karl Ludwig Michelet *et alii*, published by Duncker und Humbolt, Berlin 1832–45 (the Letters were published later in 1887): Empedocles, vol. 13 (1833), pp. 354–64. There was a second edition of vols. 13–15 (1840–4): Empedocles, vol. 13 (1840), pp. 335–43. The requisite volumes have not yet appeared in Georg Lasson's (later Johannes Hoffmeister's) edition of Hegel's *Sämtliche Werke, neue kritische Ausgabe*, F. Meiner, Hamburg 1928 ff.

1805 STRUVE, Karl Ludwig. *De elementis Empedoclis dissertatio.* Literis Michaelis Gerhardi Grenzii, typographi academici, Dorpati. Pp. 28.

This offers a few remarks on the behaviour of the elements which in so far as they are correct are by now pretty obvious.

1808 CARUS, Friedrich August. *Geschichte der Psychologie*, Theil 3 of *Nachgelassene Werke.* I. A. Barth und P. G. Kummer, Leipzig. Empedocles, Abtheilung 1, pp. 189–93.

1810 PEYRON, Vittorio Amedeo. *Empedoclis et Parmenidis fragmenta ex codice Taurinensis Bibliothecae restituta et illustrata ab A.P., simul agitur de genuino graeco textu commentarii Simplicii in Aristotelem De caelo et mundo.* Sumptibus I. A. G. Weigel, Lipsiae. Pp. 70. Empedocles, pp. 27–55.

This discusses fragments quoted in Simplicius' *De caelo*. The readings of Peyron's manuscripts have however been outdated by the publication of Heiberg's Berlin edition of 1894, see Heiberg's *Praefatio*, p. viii. 24 n. 3. 284 n. 6. 325 n. 2.

1813 SCINÀ, Domenico. *Memorie sulla vita e filosofia d'Empedocle Gergentino (sic)*. 2 vols. Stamperia reale, Palermo. Vol. 1, pp. 156 and 78 (the notes are paginated separately). Vol. 2, pp. 295. There have been a number of later editions or reprintings. Cf. also Sangermano (1911).

This contains a long introduction on the history of Empedocles' life and times and the chief features of his philosophy, the latter of a fairly general character. There is then a collection of fragments, some 380 verses, gathered apparently without the help of Sturz, with translation and notes.

1818 RITTER, H. 'Über die philosophische Lehre des Empedokles', in *Analecta Litteraria*, etc., ed. Friedrich August Wolf. 2 vols., 1817–18. Apud G. C. Nauckium, Berolini. Empedocles, vol. 2 (1818), pp. 411–60.

This survey of some of the more general features of Empedocles' system no longer has any special value.

55. 320.

1823 GAISFORD, Thomas. *Poetae minores graeci*. Editio nova. 5 vols. In bibliopolio Kuehniano, impressit B. G. Teubner, Lipsiae. Empedocles, vol. 3, pp. 284–6. Empedocles is not included in Gaisford's earlier edition, Oxonii 1814–20.

This contains the text of Peyron's fragments (1810), with a few notes, based on two Oxford manuscripts apparently inferior to those used by Heiberg.

1825 SPRENGEL, Kurt Polycarp Joachim. *C.S., fac. med. senior, Empedoclis commenta de Protogaea illustraturus iuvenis ornatissimi Bernhardi Casimiri Iosephi Góra, Poloni, disputationem inauguralem die XVII. ian. MDCCCXXV. habendam eiusque promotionem celebrandam indicit*. Typis F. A. Grunerti patris filiique, Halae. Pp. 8.

An account of Empedocles' zoogony which omits or glosses over the more crucial points.

1829 BRANDIS, Ch. A. 'Bemerkungen über die Reihenfolge der ionischen Physiologen und über einzelne ihrer Lehren', *Rh. M.* [original series], Jahrgang 3, Heft 1, pp. 107–47. Empedocles, pp. 121–32.

The *Fortsetzung* promised did not appear.

Outdated.

1829–53 RITTER, August Heinrich. *Geschichte der Philosophie*. 12 parts. Theile 1–3, 2nd edn 1836–7. F. Perthes, Hamburg. Empedocles, Theil 1, pp. 532–72.

1830 LOMMATZSCH, Bernhard Heinrich Carl. *Die Weisheit des Empedocles nach ihren Quellen und deren Auslegung philosophisch bearbeitet, nebst einer metrischen Übersetzung der noch vorhandenen Stellen seines Lehrgedichts über die Natur und die Läuterungen, so wie seiner Epigramme.* G. Reimer, Berlin. Pp. 307.

This gives a wordy analysis of some advanced philosophical conceptions that have little to do with Empedocles.

1831 PHILIPPSON, Ludwig. Ὕλη ἀνθρωπίνη. 2 parts. Pars 1: *De internarum humani corporis partium cognitione Aristotelis cum Platonis sententiis comparata.* Pars 2: *Philosophorum veterum usque ad Theophrastum doctrina de sensu.* Sumtibus J. A. List, Berolini. Empedocles, pars 2, pp. 173–83.

1832 PETERSEN, Christian P. *Philologisch-historische Studien auf dem Akademischen Gymnasium in Hamburg.* Section 1, pp. 1–40, 'Über die stufenweise Ausbildung der griechischen Philosophie von Thales bis auf Sokrates'. Perthes und Besser, Hamburg. Empedocles, pp. 26–32.

Outdated.

113 n. 2.

1833 HEGEL, see 1805.

*1835 BERGK, Theodorus. 'Schedae criticae, fasciculus II', *Z.A.W.* (1835), no. 39. Empedocles, items 1 and 2, coll. 313–14.

One or two emendations.

*1835–66 BRANDIS, Christian August. *Handbuch der Geschichte der griechisch-römischen Philosophie.* 3 vols. G. Reimer, Berlin. Empedocles, Theil 1, pp. 188–232.

Plutarch's description of total Strife, 32. Two 'moving causes', 102 n. 4. Fr. 35, 113 n. 2. General interpretation of the cosmic cycle, 157 n. 2.

*1836 BERGK, Theodor. 'De scolio Pindari in Xenophontem Corinthium dissertatio et coniecturae in poetas Graecos', *Acta Societatis Graecae*, Lipsiae, vol. 1, pp. 189–208. Empedocles, pp. 203–7. The pages on Empedocles are reprinted as 'De locis quibusdam Empedocleis' in *Kleine philologische Schriften*, 2 vols., Waisenhaus, Halle, 1884–6, vol. 2 (1886), pp. 3–7.

Some emendations.

277 n. 2. 323.

1836–7 RITTER, see 1829.

*1837 BERGK, Theodor. 'Coniectanea non reiectanea', *Z.A.W.* (1837), nos. 54–5. Empedocles, item 6, coll. 447–52. There is an additional note in *Z.A.W.* (1837), no. 61, col. 504.

Some notes and emendations.

87. 89. 106. 277 n. 2. 323.

1837–40 FRIES, Jacob Friedrich. *Die Geschichte der Philosophie dargestellt*

nach den Fortschritten ihrer wissenschaftlichen Entwickelung. 2 vols. Waisenhaus, Halle. Empedocles, vol. 1, pp. 187–209.

*1837 PETERSEN, Chr. A review of Brandis (1835) in *Allgemeine Literatur-Zeitung* (1837), nos. 96–8, coll. 153–76. Empedocles, no. 97, coll. 161–8.

This argues that the Sphere is permanent, and surrounds the four elements where Strife expands and contracts from the centre. Petersen's thesis is extravagant and largely outdated, but not altogether absurd. 104–5. 109. 113.

*1837 PRELLER, L. 'Zur Kritik der Fragmente des Empedokles', *Z.A.W.* (1837), no. 18, coll. 153–8.

Emendations and comments on several fragments.

323.

**1838 KARSTEN, Simon. *Empedoclis Agrigentini carminum reliquiae, de vita eius et studiis disseruit, fragmenta explicuit, philosophiam illustravit S.K.*, in the series *Philosophorum graecorum veterum praesertim qui ante Platonem floruerunt operum reliquiae, recensuit et illustravit S.K.*, volumen alterum. Sumtibus J. Müller, Amstelodami. Pp. 557.

On rest and movement, 6, 22 n. 1. Interpretation of Eudemus, 30 n. 4. Time, 55 n. 4. 30,000 seasons, 85, 87. Emendation of fr. 100. 8, 112. Fr. 35, 113 n. 1, 118. Fr. 17. 19–20, 131. Frr. 26a and 27, 149. General interpretation of the cosmic cycle, 157. Fr. 17. 3–5, 164 n. 1, 166–7. Argument against a cyclic interpretation, 181. Emendation of fr. 71. 4, 184 n. 3. Fr. 20, 219–20, 226. Fr. 30. 1, 274. Fr. 27. 4, 284–5. Emendation of fr. 67.2, 285 n. 2. Fr. 26. 1, 317 nn. 3 and 4. Aristotle's supposed use of fr. 26. 1, 319. Empedocles' use of caesurae, 322 n. 5. Restoration of fr. 17. 9, 323. αὐτὰ γὰρ ἔστιν ταῦτα, 324 n. 1. Fr. 59. 1, 325 n. 2.

*1838 RITTER, August Heinrich and PRELLER, Ludwig. *Historia philosophiae graeco-romanae ex fontium locis contexta, locos collegerunt, notis auxerunt H.R., L.P.* 9th edn, *Historia philosophiae graecae, testimonia auctorum conlegerunt notisque instruxerunt H.R., L.P.*, ed. Eduard Wellmann, published by F. Perthes, Gotha, 1913. Empedocles, pp. 126–55.

*1839 BERGK, Theodor. *Commentatio de prooemio Empedoclis*, in *Ankündigungsschrift...des Königl. Joachimsthalschen Gymnasiums*. Druckerei der Königlichen Akademie der Wissenschaften, Berlin. Pp. 34. Reprinted as *Commentatio de Empedoclis prooemio* in *Kl. phil. Schr.* vol. 2 (1886), pp. 8–43.

This contains detailed comments on the language of several fragments.

1839 CLEMENS, Franz Jacob. *De philosophia Anaxagorae Clazomenii*. Dissertation. Typis Nietackianis, Berolini. Empedocles, pp. 17–20.

A brief, unimportant account of the Sphere, Love and Strife.

1839 SCHLEIERMACHER, Friedrich. *Geschichte der alten Philosophie*, in *Sämtliche Werke*, Abtheilung 3 *Zur Philosophie*, Band 4 Theil 1 = *Litera-*

rischer Nachlass, zu Philosophie, Band 2 Abtheilung 1. G. Reimer, Berlin. Empedocles, pp. 37–43.

1840 HEGEL, see 1805.

1840 KRISCHE, August Bernhard. *Die theologischen Lehren der griechischen Denker, eine Prüfung der Darstellung Cicero's.* This is the same as *Forschungen auf dem Gebiete der alten Philosophie*, vol. 1. Dieterich, Göttingen. Empedocles, pp. 116–29.

This traces the historical provenance of Cicero, *De nat. deorum* 1. 29, and includes a lengthy discussion of the identification of gods in fr. 6.

1840 STEINHART, Karl Heinrich August. *Meletemata Plotiniana* etc., with a note entitled *Epimetron, loci duo Parmenidei, tres Empedoclei emendati.* Typis C. Klaffenbachii, Numburgi. Empedocles, pp. 59–60.

Three unlikely emendations of frr. 3. 9–13, 90, 111. 8.

1840 STEINHART. Article on Empedocles in J. S. Ersch and J. G. Gruber's *Allgemeine Encyklopädie der Wissenschaften und Künste* etc., F. Brockhaus, Leipzig, Teil 34, pp. 83–105.

This is a good example of the earlier (essentially Platonizing) interpretation, whereby the Sphere coexists with the present world.

General estimation of Empedocles, 72. Two 'moving causes', 102 n. 4. Fr. 17. 18–19, 137 n.6. General interpretation of the cosmic cycle, 157. Fr. 20, 218.

1842 BAKHUIZEN VAN DEN BRINK, Regnerus Cornelius. *Disputatio literaria inauguralis continens varias lectiones ex historia philosophiae antiquae* etc. H. W. Hazenberg, Lugduni-Batavorum. On 30,000 seasons, pp. 31–5. 85. 87.

*1842 BERGK, Theodor. A review of Karsten 1838, *Z.A.W.* (1842), no. 97, coll. 1001–11. Reprinted in *Kl. phil. Schr.* vol. 2 (1886), pp. 45–59.

This deals mostly with some parts of Empedocles' cosmology and cosmogony.

Emendation of fr. 35, 25. Fr. 27a, 96 n. 4. Fr. 35, 112–13, 119. Fr. 30. 1, 274 n. 1.

1843 TISCHER, Hermann. *Quaestionum Empedoclearum specimen scripsit Dr H.T.*, in *Programm, durch welches zu den am Schlusse des Schuljahrs Ostern 1842 bis Ostern 1843 den 6. und 7. April 1843 bei dem Gymnasium zu Luckau Statt findenden Schulfeyerlichkeiten im Namen seiner Amtsgenossen ehrerbietigst einladet G. Kreyenberg, Gymnasii Director.* J. Entleutner, Luckau. Pp. 1–28.

This work contains two parts: 1, pp. 3–17, *Empedoclis carmina ad quam usque aetatem servata vel potius lectitata esse integra videantur*, and 2, pp. 17–28, *De locis quibusdam Empedoclis primariis.*

Part 1 contains a discussion, still with some value, of a subject that has

been too often neglected. Part 2 is remarkable chiefly for a strange and strained interpretation of the first part of fr. 17, pp. 24–8, written before Panzerbieter's crucial emendation of line 5 (see pp. 164–8 above).
33 n. 2. 150 n. 1. 203 n. 4. 289 n. 3. 323.

*1844 BERGK, Theodor. 'Commentationum criticarum specimen II', in *Indices lectionum et publicarum et privatarum, quae in Academia Marburgensi per semestre hibernum anno 1844–5...habendae proponuntur*, pp. ii–ix. Ex officina Elwertiana, Marburgi. Empedocles, no. 1, pp. iii–iv. Reprinted in *Kl. phil. Schr.* vol. 2 (1886), pp. 43–5.

On fr. 84.

**1844 PANZERBIETER, Friedrich. *Beiträge zur Kritik und Erklärung des Empedokles*, in *Einladungs-Programm des Gymnasium Bernhardinum in Meiningen zu der öffentlichen Prüfung...und zu der Schulfeierlichkeit* etc. Meiningen. Pp. 35.

An edition of those fragments which Panzerbieter supposes to belong to the first book of the physical poem.

Fr. 27. 4, 22 n. 1. Plutarch's *De facie*, 32. Time, 55 n. 4. 30,000 seasons, 89. Two 'moving causes', 102 n. 4. Position of Love, 105. Fr. 17. 19–20, 130, 137. Frr. 26a and 27, 149, 152–3. Interpretation of the cosmic cycle and emendation of fr. 17. 5, 157–8, 164–8. Fr. 20, 219, 226. Fr. 21. 6, 266–7. Fr. 30, 275. Emendation of fr. 17. 5, 278.

**1844 ZELLER, Eduard. *Die Philosophie der Griechen, eine Untersuchung über Charakter, Gang und Hauptmomente ihrer Entwicklung.* Later, *Die Philosophie der Griechen in ihrer geschichtlichen Entwicklung.* Various editions, and finally comprising 3 Teile, 6 Abteilungen. Teil 1, Hälfte 1–2, 6th edn, ed. Wilhelm Nestle, published by O. R. Reisland, Leipzig 1919–20. Reprinted F. Olms, Hildesheim, 1963. Empedocles, Teil 1, Hälfte 2 (1920), pp. 939–1038.

On rest and movement, 5–6. Beginning of rotation, 21. Pythagorean opposites, 44 n. 2. Temporal division of the cycle, 55, 56, 60 n. 1. General estimation of Empedocles' thought, 72. Temporal division of the cycle, 84 n. 1, 85, 89. 'Four periods', 92 n. 2. Platonizing interpretations of the cycle, 101. Two 'moving causes', 102 n. 4. Fr. 35, 107, 112. Pythagorean central fire, 121 n. 1. Pythagorean μοναδικὴ φύσις, 121. Fr. 17. 19–20, 130–1, 132, 138. General interpretation of the cosmic cycle, 157–8, 159, 160. Explanations of ἐπὶ τῆς φιλίας and φιλότητος, 173, 175–6. Zoogony, 196–7, 205 n. 3, 210, 212, 232 n. 5, 234. Aristotle's quotation of fr. 26, 261 n. 1. Fr. 30. 1, 274 n. 1. On air and aether and the first separations of the elements, 288–9. Fr. 59. 1, 325 n. 2. Relation of the two poems, 328 n. 3, 331. Bibliography, 346.

*1845 PANZERBIETER. 'Zu Empedokles', *Z.A.W.* (1845), nos. 111 and 112, coll. 883–7 and 889–93.

This contains additions to Panzerbieter's *Beiträge* (1844).

Emendation of fr. 21. 14, 279. Fr. 22, 306, 307, 309.

1845 WIRTH, Johann Ulrich. *Die speculative Idee Gottes und die damit zusammenhängenden Probleme der Philosophie, eine kritisch-dogmatische Untersuchung.* J. G. Gotta, Stuttgart und Tübingen. Empedocles, pp. 171–6.

1846 DEZEIMERIS. 'De quelques ouvrages retrouvés d'Empédocle, de Démocrite et de Diogène d'Apollonie', published in *Le Moniteur Universel*, under the heading *Institut Royal de France, Académie des Sciences Morales et Politiques, séance du 21 fevrier 1846.* In three instalments: inst. 1 'Premier mémoire (1re partie)', *4e Supplément au no. 155 du jeudi 4 juin 1846*, coll. 1647c–1648a; inst. 2, 'Premier mémoire (première partie)', no. 159 *Partie non officielle*, coll. 1702b–1703a; inst. 3, 'Premier mémoire (1ère partie)' and 'Deuxième partie', *3e Supplément au no. 160 du mardi 9 juin 1846*, coll. 1717c–1718b. The whole paper is devoted to Empedocles: the continuation on Democritus and Diogenes never followed, and could not be found among Dezeimeris' papers after his death: see Reinach (1876), p. 279.

This seeks to identify the Hippocratic treatise *De victu* with the prose work on medicine attributed by the Suda to Empedocles.

1847 EMPERIUS, Adolf. *Opuscula philologica et historica amicorum studio collecta*, ed. F. G. Schneidewin. Dieterich, Gottingae. Empedocles, p. 287.

Emendation of fr. 40 accepted (without acknowledgment) by Diels in *Fragm. der Vors.*

1847 GLADISCH, A. 'Empedokles und die alten Aegypter', *Jahrbücher für speculative Philosophie und die philosophische Bearbeitung der empirischen Wissenschaften*, herausgegeben von Dr Ludwig Noack. Darmstadt. Jahrgang 2, Heft 4, item 33, pp. 681–725, and Heft 5, item 41, pp. 903–44.

This is repeated somewhat more fully in 1858, *q.v.*

1849 RAYNAUD, J.-P. *De Empedocle.* Dissertation. Ex typis Silbermann, Argentorati. Pp. 28.

An outline of Empedocles' life and teaching, of no special value.

157.

1849 VON PRANTL, Karl. *Aristoteles über die Farben, erläutert durch eine Übersicht der Farbenlehre der Alten von C.P.* C. Kaiser, München. Empedocles, pp. 40–8.

1850 MULLACH, Friedrich Wilhelm August. *Disputatio de Empedoclis prooemio*, in a pamphlet with the superscription *Germaniae philologos Berolinum congressos Societatis Gymnasiorum Berolinensium sodales salvere iubent, interprete F.G.A.M.* Typis A. G. Schadii, Berolini, Pp. 22.

This is reprinted on pp. xiii–xxvi of Mullach's 1860 edition.

1851 GRUPPE, Otto Friedrich. *Die kosmischen Systeme der Griechen.* G. Reimer, Berlin. Empedocles, pp. 98–100.

1851 BRINK, see the following entry.

1851 SCHNEIDEWIN, F. W. 'Neue verse (*sic*) des Empedocles', *Philologus 6*, pp. 155–67. B. ten BRINK *ibid.* Miscellen, pp. 730–4.

On fr. 6, with some additional material by Schneidewin on the language of a few other fragments.

139 n. 2.

1852 STEIN, Heinrich. *De Empedoclis scriptis.* Dissertation. Formis C. Georgii, Bonnae. Pp. 28.

This discusses the plausibility of works attributed to Empedocles other than the *Peri Physeos* and the *Purifications*, and distinguishes some fragments of the *Purifications* from the physical poem. The whole discussion is reprinted unchanged on pp. 1–25 of Stein's 1852 edition.

**1852 STEIN, Heinrich. *Empedoclis Agrigentini fragmenta disposuit recensuit adnotavit H.S., praemissa est de Empedoclis scriptis disputatio.* Apud A. Marcum, Bonnae; apud O. C. Marcum, Londini. Pp. 87.

Fr. 17. 19–20, 131 n. 5. Frr. 26a and 27, 149. Fr. 17. 3–5, 166. Emendation of *aer* in fr. 100, 291. Emendation of fr. 22. 3, 307. Fr. 26. 1, 316.

*1853 BERGK, Theodor. Review of Stein's 1852 edition in *Neue Jahrbücher für Philologie und Pädagogik*, Jahrgang 23, Band 68, pp. 21–6. Reprinted in *Kl. phil. Schr.* vol. 2 (1886), pp. 59–66.

1853 HOLLENBERG, Wilhelm. *Empedoclea*, in *Jahresbericht über das Königliche Joachimsthalsche Gymnasium*, pp. 1–31. Druckerei der Königlichen Akademie der Wissenschaften, Berlin. After a brief biographical preface there are two sections: section 1, pp. 2–17, 'De prooemio Empedoclis', section 2, pp. 17–31, 'De cognoscendi facultate'.

Section 1 contains annotations, mostly outdated, of fragments which Hollenberg argues came at the beginning of each poem. Section 2 argues that Empedocles wavered over the distinction between the mind and the senses.

1853 MULLACH, August Wilhelm Friedrich. *Quaestionum Empedoclearum specimen secundum*, in *Programme d'Invitation à l'examen public du Collège Royal Français, fixé au 30 septembre 1853*, pp. 3–32. Imprimé chez J. F. Starks, Berlin. The *specimen primum* is evidently intended to be Mullach's *Disputatio* of 1850: see p. 9 of the present item and p. 22 of the *Disputatio*.

This deals largely with fragments placed by Diels in the *Katharmoi*, and by Mullach as a proem to the physical poem. The conclusions are incorporated verbatim into the relevant parts of the commentary of Mullach's edition in 1860.

1856 SUSEMIHL, Franz. 'Über das Verhältnis des Gorgias zum Empedokles', *Neue Jahrbücher für Philologie und Pädagogik*, Jahrgang 26, Band 73, [Abtheilung 1], pp. 40–2.

There is a fuller study of this subject by Diels in 1884.

1857 APELT, Ernst Friedrich. *Parmenidis et Empedoclis doctrina de mundi structura*. Sumptibus F. Maukii, Jenae. Pp. 14 and 2 diagrams. Empedocles, pp. 10–14.

This contains a wholly impossible reconstruction of Empedocles' celestial mechanics, which the author himself confesses, p. 14, 'non omnibus scriptorum locis consentire'.

1857 HALLIER, Aemilius. *Lucreti carmina e fragmentis Empedoclis adumbrata*. Dissertation. Typis Maukii, Jenae. Pp. 39.

Almost entirely superseded by Jobst (1907).

1858 GLADISCH, August. *Empedokles und die Aegypter, eine historische Untersuchung von A.G., mit Erläuterungen aus den Aegyptischen Denkmälern von Dr. Heinrich Brugsch und Joseph Passalacqua*. J. Hinrich, Leipzig. Pp. 156.

This identifies Egyptian beliefs with Empedocles' theories primarily of the Sphere, reincarnation, and a blood soul. This thesis is part of a wider view which unites Pythagoreans and the Chinese, Eleatics and the Indians, Heraclitus and the Persians, Anaxagoras and the Israelites. Zeller, ZN, p. 1023 n. 2, writes, 'sehr unwahrscheinlich'.

**1860–81 MULLACH, Friedrich Wilhelm August. *Fragmenta philosophorum graecorum collegit recensuit vertit annotationibus et prolegomenis illustravit indicibus instruxit F.G.A.M.* 3 vols. [Vol. 1] has the subtitle *Poeseos philosphicae caeterorumque ante Socratem philosophorum quae supersunt*. Editore A. Didot, Parisiis. Empedocles, vol. 1, pp. xiii–xxvii and 1–80.

Fr. 27. 4, 22 n. 1. 30,000 seasons, 85, 87. Fr. 35, 113 n. 1. Frr. 26a and 27, 149. Fr. 17. 3–5, 166. Fr. 26. 7, 320.

1860 STEIN, Heinrich. Miscellen, 'Zu Empedokles', *Philologus*, 15, pp. 143–6.

Stein here foolishly accepts as genuine some verses avowedly forged to match the text of Aristotle *De part. anim.* 640a18–22 and b11–15, published by J. A. Cramer, *Anecdota Graeca* (Oxonii, 1835–7), vol. 3, p. 184. Stein is refuted by Diels (1880), pp. 177–9. An improved version of Cramer's text, from a fresh inspection of the manuscripts, is published by Horna (1930).

1861 GLADISCH, Aug. 'Das mystische vierspeichige Rad bei den alten Aegyptern und Hellenen', *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, Band 15, Heft 2, pp. 406–9.

Some notes in pursuance of Gladisch's earlier thesis, see Gladisch (1847) and (1858).

1862–4 BRANDIS, Christian August. *Geschichte der Entwickelungen der griechischen Philosophie und ihrer Nachwirkungen im römischen Reiche.* 2 vols. G. Reimer, Berlin. Empedocles, Hälfte 1, pp. 103–19.

113 n. 1.

*1862 WINNEFELD, Hermann. *Die Philosophie des Empedokles, ein Versuch von Dr. H.W.*, in *Beilage zum Programm des Grossherzoglichen Gymnasiums in Donaueschingen vom Schuljahr 1861/1862.* W. Mayer, Rastatt. Pp. 59.

A simple, clear and on several points still reasonably competent account of some of the more obvious features of Empedocles' system.

5–6. 55.

1863–6 UEBERWEG, Friedrich. *Grundriss der Geschichte der Philosophie von Thales bis auf die Gegenwart*, 3 vols. 12th edn by Karl Praechter *et alii*, published by E. Mittler, Berlin, 1926–8. Empedocles, Teil 1, *Die Philosophie des Altertums*, pp. 91–7.

325 n. 2.

1866 ANONYMOUS. 'Empedocles', *The North British Review*, 45, n.s. 6, pp. 420–40.

A description of Empedocles' life and teaching, containing translations of several fragments. The whole is of some literary interest, but of no particular scholarly importance.

1868–9 BERTINI. 'Dottrine religiose di Empedocle', *Atti della reale Accademia delle scienze di Torino*, 4, pp. 675–82.

This is part of the chapter on Empedocles published in 1869, see the next entry.

1869 BERTINI, Giovanni Maria. *La filosofia greca prima di Socrate, esposizione storico-critica.* Stamperia reale, Torino. Empedocles, pp. 233–56.

1870 ACRI, F. 'De' sistemi di Empedocle e Democrito', *Rivista Sicula di Scienze, Letteratura ed Arti*, Palermo, anno 2, vol. 4, pp. 408–21.

A fairly obvious account of movement and change in both systems.

102.

*1870 BERGK, Theodor. Miscellen, 'Philologische Thesen, zweite Centurie, Schluss', *Philologus*, 29, pp. 319–30. Empedocles, p. 320, items 60 and 61. Reprinted in *Kl. phil. Schr.* vol. 2 (1866), p. 320.

Emendation of frr. 21 and 98.

1871 LIOY, P. 'Un filosofo di duemila anni fa', *Rivista Sicula di Scienze, Letteratura ed Arti*, Palermo, anno 3, vol. 6, pp. 5–19.

A popular account of no scholarly value.

1871–84 MADVIG, Johan Nicolas. *Adversaria critica ad scriptores graecos et latinos.* 3 vols. Sumptibus Librariae Gyldendalianae (F. Hegel), Hauniae. Empedocles, vol. 1, p. 656.

Emendation of fr. 5.

*1873 DIELS, Hermannus. 'Critica', in *Commentationes in honorem Francisci Buecheleri Hermanni Useneri editae a Societate Philologa Bonnensi*, pp. 61–7. Apud A. Marcum, Bonnae. Empedocles, sect. 6, pp. 65–6.

On fr. 42.

1873 ff. NIETZSCHE, Friedrich. *Die Philosophie im tragischen Zeitalter der Griechen*, in *Nietzsches Werke*, Band 10 = Abteilung 2, *Nachgelassene Werke*, C. G. Naumann, Leipzig. 1st edn, 1896, pp. 1–157. Empedocles, pp. 90–104. 2nd edn, 1903, pp. 5–106, Empedocles (a sketch only), pp. 93–7.

1873 ff. NIETZSCHE, Friedrich. *Die vorplatonischen Philosophen*, in *Nietzsches Werke*, Band 19 = Abteilung 3, *Philologica*, edd. Otto Crusius and Wilhelm Nestle, Band 3 (1913), pp. 125–234. A. Kröner, Leipzig. Empedocles, pp. 189–201.

1873 SYMONDS, John Addington. *Studies of the Greek Poets*. 3rd edn, 2 vols., A. and C. Black, London, 1893. Empedocles, vol. 1, pp. 191–219.

1874 HENNEGUY, Félix. *Panthéia, étude antique*. Librairie des Bibliophiles, Paris. Pp. 150.

This is an original drama with Empedocles as the chief character. The text includes the translation of 178 verses, of which the Greek, with references to the text of the drama, is printed in the 'Notes', pp. 139–50.

*1874 MERZDORF, Reinhold. 'Quaestiunculae Empedocleae', in *Commentationes philologae, scripserunt Seminarii Philologi Regii Lipsiensis . . . sodales, G. Curtio dicatae*, pp. 41–56. Giesecke und Devrient, Lipsiae.

A useful study of Homeric usage and dialect forms in Empedocles.

291 n. 3. 322 n. 5.

1875 BAESTLEIN, Albert. *Quid Lucretius debuerit Empedocli Agrigentino*, in *Jahresbericht des Königlichen Preussischen Hennebergischen Gymnasiums zu Schleusingen*. Druck der Keyssner'schen Hofbuchdruckerei in Meiningen. Pp. 21.

Except for a few details this has been superseded by Jobst's more thoroughgoing and more balanced work, see Jobst (1907).

1876 BALTZER, Eduard. 'Empedokles, eine Studie', *Athenaeum, Monatsschrift für Anthropologie, Hygieine, Moralstatistik, Bevölkerungs- und Culturwissenschaft, Pädagogik und die Lehre von den Krankheitsursachen, unter Mitwirkung von Fachmännern*, herausgegeben und redigirt von Dr. Eduard Reich, published by H. Costenoble, Jena, 1875–6. In two instalments: inst. 1, 'Einleitung' and 'I Akragas', Jahrgang 2 (1876), Heft 3, pp. 159–65; inst. 2, 'II Ein Blick in die politischen Zeitverhältnisse', Jahrgang 2 (1876), Heft 4, pp. 203–7. The Journal ceased to appear, and the *Fortsetzung* promised at the end of the second instalment did not follow.

This is reprinted on pp. 1–18 of Baltzer's later work in 1879.

1876–7 Byk, S. A. *Die Vorsokratische Philosophie der Griechen in ihrer organischen Gliederung dargestellt.* 2 vols. M. Schaefer, Leipzig. Empedocles, Theil 1, *Die Dualisten*, pp. 147–90.

1876 Reinach, Salomon. 'Le texte d'Empédocle, étude critique', *L'Instruction publique, revue des lettres, sciences et arts* (Paris), vol. 5. In four instalments: inst. 1, no. 11, 11 mars 1876, pp. 165–7; inst. 2, no. 12, 18 mars 1876, pp. 183–4; inst. 3, no. 16, 15 avril 1876, pp. 247–9; inst. 4, no. 18, 29 avril 1876, pp. 277–9.

This gives quite an interesting account of one or two references to Empedocles in late antiquity, and of the forgeries and false hopes that clustered around Empedocles' name, especially in the years preceding Sturz's edition.

1877 Schultze, Fritz. 'Über das Verhältnis der griechischen Naturphilosophie zur modernen Naturwissenschaft', *Kosmos*, Jahrgang 1, Band 2, Heft 8, pp. 95–104; Heft 9, pp. 191–203; Heft 10, pp. 295–311; Heft 11, pp. 397–416. Empedocles, Heft 10, pp. 297–9.

1878 Schlaeger, R. *Empedocles Agrigentinus quatenus Heraclitum Ephesium in philosophia secutus sit scripsit R.S.*, in *Jahresbericht über das Karl-Friedrichs-Gymnasium zu Eisenach von Ostern 1877 bis Ostern 1878*. Hofbuchdruckerei, Eisenach. Pp. 24.

This argues that Love and Strife, the four elements and the migration of souls are derived from Heraclitus; and that there are personal criticisms of Heraclitus in frr. 2. 6 and 17. 21–6. Outdated and exaggerated.

1878 Zeller. 'Über die griechischen Vorgänger Darwin's', *Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin* (1878), pp. 111–24. Empedocles, pp. 115–19.

196 n. 2. 234 n. 4.

1879 Baltzer, Eduard. *Empedocles, eine Studie zur Philosophie der Griechen.* O. Eigendorf, Leipzig. Pp. 163.

This is essentially a popular work, largely taken up with background studies of Empedocles' historical setting. There is a translation of the fragments, but the commentary that follows adds nothing to the detailed interpretation of Empedocles.

*1879 Martin, Thomas-Henri. 'Mémoire sur les hypothèses astronomiques des plus anciens philosophes de la Grèce étrangers à la notion de la sphéricité de la terre', *Mémoires de l'Institut National de France, Académie des Inscriptions et Belles-Lettres*, 29, 2ème partie, pp. 29–252. Empedocles, pp. 211–35. Also published separately by the Imprimerie Nationale, Paris, 1879.

It is still profitable to read this clear and sensible account of Empedocles'

astronomical theories, interpreted in a broad sense, and preceded by an outline of the cosmic cycle.
5–6. 16. 46.

1879 VAN STÉGEREN, D. J. 'Empedocles en Darwin', *De Nederlandsche Spectator* (1879), no. 50, pp. 398–400.
Some short comments, stimulated by Baltzer (1879), of no particular value.

1879 WYBRANDS, Aem. W. 'Nog over Empedokles', *De Nederlandsche Spectator* (1879), no. 51, p. 406.
A few sentences in answer to van Stégeren (1879), to the effect that it had all been said before.

*1880 DIELS, H. 'Studia Empedoclea', *Hermes*, 15, pp. 161–79.
An excellent study of a large number of fragments. The conclusions are nearly all incorporated into *Poet. phil. fragm.* 1901.
Emendation of fr. 21. 14, 279. Fr. 96. 2, 279. Emendation of fr. 22. 3, 307. Fr. 26. 7, 320, 321, 322. Empedocles' use of caesurae, 322 n. 5. Bibliography, 346.

1880 VAN DEN ES, A. H. G. P. 'Empedocles', *De Nederlandsche Spectator*, in seven instalments: inst. 1, no. 2, pp. 14–15; inst. 2, no. 3, pp. 20–3; inst. 3, no. 4, pp. 27–9; inst. 4, no. 5, pp. 35–7; inst. 5 and 6, no. 9, pp. 67–73; inst. 7, no. 12, pp. 96–9.
A popular account, with translations of several fragments.

1880–4 SIEBECK, Hermann. *Geschichte der Psychologie.* Theil 1 with 2 Abtheilungen, no more published. F. A. Perthes, Gotha. Empedocles, Theil 1 Abtheilung 1, *Die Psychologie vor Aristoteles*, pp. 49–56.

*1881 ANONYMOUS. 'Über die Bergdurchstechung des Empedokles in Akragas', *Beilage zur Augsburger Allgemeinen Zeitung*, no. 319, 15 November 1881, pp. 4691–2.
This contains a not implausible argument to the effect that Empedocles' activity consisted not in stopping a gap in the mountains, but in opening the split which still exists in the mountain range on which the city stands, so as to open a passage for the north wind, and blow away the humours arising from the marshes between the city and the sea. The writer claims that there is a local tradition in favour of this account.

1882 BENN, Alfred William. *The Greek Philosophers.* 2 vols. 2nd edn in 1 vol., Smith, Elder and Co., London, 1914. Empedocles, pp. 26–31.

1882 BRÉTON, Guillaume. *Essai sur la poésie philosophique en Grèce, Xénophane, Parménide, Empédocle.* Librairie Hachette, Paris. Empedocles, pp. 177–257.
A fairly general account of Empedocles' life and philosophy.

*1883 BLASS, Friedrich. 'Zu Empedokles', *Neue Jahrbücher für Philologie und Pädagogik*, Jahrgang 53, Band 127 [Abteilung 1], pp. 19–20.

A few emendations.

1883 EMMINGER, Alphons. *Die Vorsokratischen Philosophen nach den Berichten des Aristoteles*. J. Richter, Würzburg. Empedocles, pp. 55–66.

1883 SARTORIUS, Max. 'Die Entwicklung der Astronomie bei den Griechen bis Anaxagoras und Empedokles, in besonderem Anschluss an Theophrast', *Zeitschrift für Philosophie und philosophische Kritik*. Erste Hälfte, n.F. 82 (1883), pp. 197–231. Zweite Hälfte, n.F. 83 (1883), pp. 1–28. Empedocles, zweite Hälfte, pp. 23–6. Also published separately, Heynemann, Halle, 1883. Empedocles, pp. 62–4.

1883 ZELLER, Eduard. *Grundriss der Geschichte der griechischen Philosophie*. 13th edn by Wilhelm Nestle, published by O. R. Reisland, Leipzig, 1928. Empedocles, pp. 65–72.

*1884 DIELS, H. 'Gorgias und Empedokles', *S.B.B.* (1884), no. 19, pp. 343–68.

This argues that Gorgias turned from the study of the physical world to nihilism and then to rhetoric, and that he was influenced by Empedocles' optical theories in the first stage and in the last stage by Empedocles' use of language. A weakness in this thesis lies in the assertion, p. 359, 'Es erscheint daher richtiger, die drei verschiedenen Gestalten, in denen uns Gorgias erscheint als Physiker, als Eristiker, als Rhetor, nicht als ein Nebeneinander, sondern als ein Nacheinander seiner geistigen Entwickelung aufzufassen'. Pp. 345–51 contain a useful analysis of the definition of colour at *Meno* 76c, a subject also treated by Grimal (1942).

204 n. 2. 322 n. 5. Bibliography, see the second entry below.

1884 HARDY, Edmund. *Der Begriff der Physis in der griechischen Philosophie*. Theil 1, no more published. Weidmann, Berlin. Empedocles, pp. 20–3.

1884 UNGER, Georg Friedrich. 'Die Zeitverhältnisse des Anaxagoras und Empedokles', *Philologus Supplementband* 4, pp. 511–50.

This concludes that Empedocles was born in 520 and published his physical poem before 472, and that Anaxagoras lived from 533 to 462 and wrote his work in 466. Diels (1884), p. 344 n. 2, writes, 'eine bedauerliche Verirrung des scharfsinnigen Gelehrten'. Bidez (1894), p. 130, writes, 'M. Unger aboutit à une chronologie impossible... C'est de la haute fantaisie.'

1885 ΕΥΑΓΓΕΛΙΔΗΣ, Μαργαρίτης. Ἱστορία τῆς θεωρίας τῆς γνώσεως. Π. Δ. Σακελλάριος, ἐν Ἀθήναις. Empedocles, pp. 75–89.

1885 HIRZEL, Rud. 'Über Rundzahlen', *Berichte über die Verhandlungen der Königlichen Sächsischen Gesellschaft der Wissenschaften zu Leipzig*,

Philologisch-historische Classe 37, pp. 1–74. On 30,000, including Empedocles' 30,000 seasons, pp. 64–72.

87.

1886 BERGK, Theodor. *Kleine philologische Schriften*, vol. 2, see 1836, 1839, 1842, 1844, 1853, 1870.

*1887 ALESSIO, F. 'Empedocle', *La Rassegna Nazionale*, Firenze, anno 9, vol. 35, pp. 308–55.

A quite comprehensive but unoriginal account of Empedocles' life and teaching.

1887–93 CHAIGNET, Antelme Édouard. *Histoire de la psychologie des Grecs*. 5 vols. Librairie Hachette, Paris. Empedocles, vol. 1, pp. 82–96.

146.

1887 TANNERY, Paul. 'La cosmogonie d'Empédocle', *Revue Philosophique de la France et de l'Étranger*, 24, pp. 285–300.

This is identical, except for small verbal changes, with the chapter on Empedocles in *Science hellène*.

**1887 TANNERY, Paul. *Pour l'histoire de la science hellène, de Thalès à Empédocle*. 2nd edn by Auguste Diès, Gauthier-Villars, Paris, 1930. Empedocles, pp. 313–47.

Movement of the separated elements, 5, 32. Speed, 46. Love as cause of rest, 102. Position of Love, 105. Cosmic breath, 124. The condition of Strife during the Sphere, 127–8. The condition of Love under total Strife, 128. Fr. 17. 19–20, 130. Elements equal in volume, 136. Cited by Millerd, 141. The condition of Love under total Strife, no justification for Tannery's view, 143. The condition of the fully separated elements, 146, 147–8. General interpretation of the cosmic cycle, 158. The condition of the fully separated elements, Tannery's influence on J. Bollack, 163. The first separations of the elements, 289 n. 1. Like to like, 312 n. 4.

*1888 KERN, Otto. 'Empedokles und die Orphiker', *A.G.P.* 1, pp. 498–508.

This argues that Empedocles was heavily indebted to the Orphics, particularly in his zoogony and use of elements, and hardly at all to the Pythagoreans. The evidence is mostly pretty marginal.

1888 VECKENSTEDT, Edmund. *Geschichte der griechischen Farbenlehre, das Farbenunterscheidungsvermögen, die Farbenbezeichnungen der griechischen Epiker von Homer bis Quintus Smyrnäus*. F. Schöningh, Paderborn. Empedocles, pp. 5–6.

There is a fuller account in Kranz (1912) and in Prantl (1849).

1888 WINDELBAND, Wilhelm. *Geschichte der Philosophie im Alterthum*, part B of *Geschichte der antiken Naturwissenschaften und Philosophie*, in

H.K.A. Band 5, Abteilung 1. 4th edn by Albert Goedeckemeyer entitled *Geschichte der abendländischen Philosophie im Altertum, H.K.A.*, 1923. Empedocles, pp. 45–51.

*1889 DUEMMLER, Ferdinand. *Akademika, Beiträge zur Litteraturgeschichte der Sokratischen Schulen.* J. Ricker, Giessen. Empedocles, pp. 216–25.

Dümmler argues against Zeller that animals appear in both worlds. He concludes from a somewhat sketchy review of the evidence that men and women were born from whole-natured creatures under increasing Strife and from separate limbs under increasing Love.

158. 198. 218.

*1889 РАДЛОВЪ, Э. Л. 'Эмпедоклъ', *Журналъ Министерства Народнаго Просвещенія*, шестое десятилетіе, части 261–3, *омдѣлъ классической филологіи*. [RADLOFF, E. L. 'Empedocles', *Journal of the Ministry of Public Education*, sixth decade, parts 261–3, *section of classical philology*.] In four instalments: inst. 1, part 261, February, pp. 81–96; inst. 2, part 261, March, pp. 97–100; inst. 3, part 262, April, pp. 1–32; inst. 4, part 263, May, pp. 33–51. Readers of this journal may find it helpful to note that the pagination follows the отдѣлъ (section) not the часть (part).

This work falls into three divisions:

1. In part 261, pp. 81–100, there is a short historical introduction followed by a translation of the fragments.

2. Part 262, pp. 1–30, is entitled 'Источники, знакомящіе нас съ философіей Эмпедокла' ('Extant sources of the philosophy of Empedocles'). This is mostly taken up with a translation of some sources arranged rather unusually, and interestingly, according to authors, Aetius, Theophrastus, etc. The few brief introductory and critical comments are clear and sound, but elementary.

3. Part 262, pp. 30–2, and part 263, pp. 33–51, are entitled 'Философія Эмпедокла' ('Empedocles' philosophy'). Empedocles is here marked as an eclectic, and there are given brief summaries of earlier Presocratic systems. There follow some interesting pages, 37–43, on Empedocles' cosmic principles and on the cosmic cycle, and some less interesting pages, 43–51, on minor physical theories.

55–6.

1890 BAEUMKER, Clemens. *Das Problem der Materie in der griechischen Philosophie, eine historisch-kritische Untersuchung.* Aschendorff, Munster. Empedocles, pp. 67–72.

*1891 FERRARI, Sante. *Empedocle.* Tipografia delle Terme Diocleziane di Giovanni Balbi, Roma. Pp. 121.

This work is a reprinting of the following items:

'Empedocle', *Rivista Italiana di Filosofia*, anno 6, vol. 1, pp. 165–90, and 'La filosofia di Empedocle', *ibid.* vol. 2, pp. 52–79 and 250–83.

'Empedocle, i frammenti del poema tradotti', *La Biblioteca delle*

Scuole Italiane (1891), no. 13, pp. 199–200 and no. 14, pp. 215–20. Ferrari's work was continued in 'La filosofia nella magna Grecia dopo Empedocle', *Atti e Memorie della R. Accademia di Scienze Lettere ed Arti in Padova*, anno 293 (1891–2), n.s. vol. 8, pp. 113–51. This later material was published separately under the same title by Randi, Padova (1892), pp. 41.

The work on Empedocles is a fairly detailed but not particularly original account mainly of the physical poem, interspersed with a good deal of fairly general comment. Some notes are added to the translation of the fragments.

References in the present work have been given to the pagination in the *Rivista*: Movement of the separated elements, 5. Speed, 46 n. 2. Temporal division of the cycle, 56 n. 6. 'Four periods', 92 n. 2. The condition of the fully separated elements, 146, 147–8. Emendation of Aet. 2. 11. 2, 287. The first separations of the elements, 289 n. 1. Like to like, 312 n. 4.

1891 KNATZ, Fridericus. 'Empedoclea', in *Schedae philologae Hermanno Usener a sodalibus Seminarii Regii Bonnensis oblatae*, pp. 1–9. F. Cohen, Bonnae.

An attempt to make Αἰδωνεύς in fr. 6 mean fire, and a few emendations, of which that of fr. 24, on pp. 7–8, alone is convincing (see DK *ad loc.*). 292 n. 1. 325 n. 2.

**1892 BURNET, John. *Early Greek philosophy*. 4th edn, a reprint of the 3rd edn, A. and C. Black, London, 1930. Empedocles, pp. 197–250.

Fr. 27. 4, 22 n. 3. Weight, 34. 'Eternal' movement, 40–1. 'Four periods', 92 n. 2. Position of Love, 104 n. 1, 105, 113–14, 118. Translation of ἐν τῇ δή fr. 35. 5, 119 n. 1. Cosmic breath, 124. The condition of Strife during the Sphere, 128–9. Fr. 17. 19–20, 130, 137. General interpretation of the cosmic cycle, 158. Emendation of fr. 9.3, 165 n. 6. Zoogony, 198–9. Fr. 30. 1, 274 n. 1. The first separations of the elements, 289 n. 1. Emendation of ἀήρ in fr. 100, 291. On air and aether, 292. Like to like, 312. Bibliography, 363.

1892 FERRARI, see 1891.

1893 DIETERICH, Albrecht. *Nekyia, Beiträge zur Erklärung der neuentdeckten Petrusapokalypse*. 2nd edn, B. G. Teubner, Berlin und Leipzig, 1913. On 30,000 seasons, p. 119.

85. 87.

1893 SYMONDS, see 1873.

1893 WALTER, Julius. *Die Geschichte der Ästhetik im Alterum, ihrer begrifflichen Entwicklung nach, dargestellt von Dr. J.W.* O. R. Reisland, Leipzig. 'Heraklit und Empedokles', pp. 106–11.

**1894 BIDEZ, Joseph. *La biographie d'Empédocle* [in *Recueil de Travaux de l'Université de Gand, publiés par la Faculté de Philosophie et Lettres*]. Clemm, Gand. Pp. 176.

Bibliography, 351.

1894 DEUSSEN, see 1911.

*1894 DUEMMLER, Ferdinand. 'Zur orphischen Kosmologie', *A.G.P.* 7, pp. 147–53.

This argues, following Kern (1888), that Empedocles made use of the Orphic theory described in Kern, *Orphicorum fragmenta* 168.

1894 ROHDE, Erwin. *Psyche, Seelencult und Unsterblichkeitsglaube der Griechen.* 8th edn by F. Boll and O. Weinreich, published by J. C. B. Mohr, Tübingen, 1921. Empedocles, pp. 171–87.

On 30,000 seasons, 85, 87.

*1895 DOERING, A. 'Das Weltsystem des Empedokles', *Zeitschrift für Philosophie und philosophische Kritik* (continuation of *Zeitschrift für Philosophie und spekulative Theologie*), n.F. 105, pp. 29–45.

A detailed account of Strife's cosmogony with some useful points.

288 n. 2. 289.

*1896 BIDEZ, J. 'Observations sur quelques fragments d'Empédocle et de Parménide', *A.G.P.* 9, n.F. 2, pp. 190–207 and 298–309.

Empedocles' views of the range and character of human knowledge are compared with those of his predecessors and found to be eclectic and uncertain. There is a more recent and more useful study of the same subject by Verdenius (1942).

*1896 GOMPERZ, Th. Miscellen, 'Zu Empedokles', *Hermes*, 31, pp. 469–71.

Some emendations and an implausible interpretation of fr. 35. 15. On the latter cf. O'Brien (1965).

*1896–1902 GOMPERZ, Theodor. *Griechische Denker, eine Geschichte der antiken Philosophie.* 3 vols. Veit, Leipzig. Empedocles, vol. 1, pp. 183–204.

85. 219 n. 1. 312. Bibliography, 395.

1896 NIETZSCHE, see 1873.

*1896 PLATT, Arthur. 'Notes on Empedocles', *The Journal of Philology*, 24, pp. 246–7.

Some emendations, and a note that Empedocles is not referred to at Plato, *Gorgias* 493 A.

324 n. 1.

*1897 DIELS, H. 'Über ein Fragment des Empedokles', *S.B.B.* (1897), no. 49, pp. 1062–73. This was also published separately by G. Reimer, Berlin, pp. 12.

A fresh examination of fr. 142.

*1897 FAIRBANKS, Arthur. 'On Plutarch's quotations from the early Greek philosophers', *T.A.P.A.* 28, pp. 75–87.
33 n. 2. 152 n. 3. 226 n. 1.

1897 THIELE, GEORG. 'Zu den vier Elementen des Empedokles', *Hermes*, 32, pp. 68–78.
This argues that in fr. 6 Zeus is air, Hera earth, Aidoneus fire, cf. Knatz (1891). Apparently to support this a large number of examples are offered of pictorial representations of the elements in antiquity and later.

1898 BENN, Alfred William. *The philosophy of Greece, considered in relation to the character and history of its people.* G. Richards, London. Empedocles, pp. 97–104.

*1898 DIELS, H. 'Über die Gedichte des Empedokles', *S.B.B.* (1898), no. 31, pp. 396–415. This was also published separately under the same title by G. Reimer, Berlin, pp. 20.
This seeks to establish the length of the two poems (2,000 verses and two books in the physical poem and 1,000 verses and one book in the religious poem), the placing of some fragments, and the priority of the physical poem. Cf. Zuntz (1965).
210 n. 3. 285 n. 2.

*1898 DIELS, Hermann. 'Symbola Empedoclea', in *Mélanges Henri Weil, recueil de mémoires concernant l'histoire et la littérature grecques dédié à H. Weil*, pp. 125–30. A. Fontemoing, Paris.
Some emendations.
219.

1898 FAIRBANKS, Arthur. *The first philosophers of Greece, an edition and translation of the remaining fragments of the pre-Sokratic philosophers, together with a translation of the more important accounts of their opinions contained in the early epitomes of their works.* Kegan Paul, Trench and Trübner, London. Empedocles, pp. 157–234.

1898 FAIRBANKS, Arthur. 'Repetitions in Empedokles', *C.R.* 12, pp. 16–17.
This seeks to reduce the number of genuine repetitions in Simplicius' quotations of Empedocles.

1899 DIELS, Hermann. *Elementum, eine Vorarbeit zum griechischen und lateinischen Thesaurus.* B. G. Teubner, Leipzig. Empedocles, pp. 15–16.

*1899 FREDRICH, Karl. *Hippokratische Untersuchungen*, in the series *Philologische Untersuchungen*, edd. A. Kiessling and U. von Wilamowitz-Moellendorff, Heft 15. Weidmann, Berlin. Empedocles, pp. 27–9 and 125–9.
A useful collection of some Empedoclean borrowings in the Hippocratic corpus. There is a more recent study by Jouanna (1961).
317 n. 2.

1899 KUEHNEMANN, Eugen. *Grundlehren der Philosophie, Studien über Vorsokratiker, Sokrates und Plato.* W. Spemann, Berlin und Stuttgart. Empedocles, pp. 107–21.

1900 CLERMONT-GANNEAU. 'Empédocle, les Manichéens et les Cathares', *Journal Asiatique*, série 9, tome 15, pp. 179–86.

This restores the name Empedocles to a brief summary of his doctrines related in a Syrian work of the eighth or ninth century.

*1901 COVOTTI, Aurelio. *La filosofia nella Magna Grecia e in Sicilia fino a Socrate*, in the series *Annali delle Università Toscane*, Pisa, vol. 23. Pp. 171. Empedocles, pp. 139–69.

A quite detailed account of Empedocles' physical system. Cf. Covotti (1934).

The temporal division of the cycle, 56 n. 6. 'Four periods', 92 n. 2. Fr. 17. 3–5, 165. The first separations of the elements, 289 n. 3. Fr. 26. 1–2, 318.

**1901 DIELS, Hermann. *Poetarum philosophorum fragmenta*, vol. 1, fasciculus prior of *Poetarum graecorum fragmenta*, ed. U. von Wilamowitz-Moellendorff. Apud Weidmannos, Berolini. Empedocles, pp. 74–168.

Accent of κρυφός, 20 n. 1. Fr. 27. 4, 22 n. 3. Weight, 34. Fr. 35. 8, 106 n. 1. Fr. 28. 1, 139 n. 3, cf. n. 1. Frr. 26a and 27, 149. Fr. 62 and the composition of the οὐλοφυῆ, 203–4. Sources of fr. 117, 203 n. 4. Fr. 20, 218–21, 224, 225. Fr. 21. 6, 266. Emendation of fr. 131. 2, 285. Fr. 67.2, 285 n. 2. Fr. 22, 306, 307, 309. Aristotle's supposed use of fr. 26. 1, 319. Emendation of fr. 26. 7, 321. Empedocles' use of caesurae, 322 n. 5. Fr. 59. 1, 325 n. 1.

1901 LLOYD, Alfred H. 'A study in the logic of the early Greek philosophy: pluralism, Empedocles and Democritus', *P.R.* 10, pp. 261–70.

This argues that Democritus' infinite pluralism is the 'natural, logical goal', p. 265, of Empedocles' finite pluralism. The principles invoked to show this are so general as to render any application of the argument to the historical Democritus or Empedocles extremely hypothetical.

1901 MAGNUS, Hugo. *Die Augenheilkunde der Alten.* J. U. Kern (M. Müller), Breslau. Empedocles, pp. 96–8.

1901 NAGY, Albino. 'Di alcuni scritti attribuiti ad Empedocle', *Rendiconti della Reale Accademia dei Lincei, Classe di scienze morali, storiche e filologiche*, serie 5, vol. 10, pp. 307–20 and 325–44.

A study of notices of Empedocles in Arabic and Hebrew texts. It is doubtful however whether any fresh information on Empedocles can be gleaned from these sources. For a similar study cf. Altheim and Stiehl (1954).

33 n. 2.

1901 WOODBRIDGE, Frederick J. E. 'The dominant conception of the earliest Greek philosophy', *P.R.* 10, pp. 359–74. Empedocles, pp. 364–7.

This discusses the sense of φύσις in Empedocles.

1902 ELLIS, Robinson. 'Some suggestions on Diels' *Poetarum philosophorum fragmenta*', *C.R.* 16, pp. 269–70.

A few emendations.

1902 JACKSON, Henry. Comments on frr. 2 and 4 in *P.C.P.S.* 61, pp. 4–5.

*1902 JAECKEL, Johannes Friedrich. *De poetarum siculorum hexametro.* Dissertation. Typis A. Hoffmann, Lipsiae. Pp. 105.

A detailed work, with useful statistics.

1902 PASCAL, Carlo. 'L'imitazione di Empedocle nelle *Metamorfosi* di Ovidio', *Rendiconto dell'Accademia di Archeologia, Lettere e Belle Arti di Napoli*, pp. 61–85. This was also published separately, under the same title, by the Tipografia della reale Università, Napoli (1902), pp. 29.

An exaggerated and largely unsubstantiated account of Empedoclean influence in Ovid's cosmogony in the first book of the *Metamorphoses*, and of his portrayal of Pythagoras in book 15. This is not to deny that there may be Empedoclean influence in both passages, and that some promising points may be culled from Pascal's article. But on the whole the connections with Empedocles adduced by Pascal are of a general kind, and, with rare exceptions (cf. pp. 71 n. 5, 73 n. 1, 84 n. 13), no attempt is made to show that the provenance of the material cited is exclusively or distinctively Empedoclean. The anonymous reviewer, ('H.W.') in *Wochenschrift für klassische Philologie* (1903), no. 28, pp. 769–70, rightly concludes, 'Somit scheint mir Pascals Schriftchen weder für Ovid noch für Empedokles Gewinn zu bringen'.

289 n. 3.

1902 PEITHMANN, E. C. H. Article on Empedocles in the series *Biographia Antiqua oder ein Bericht über das Leben und die Schriften der älteren und neueren Magier, Kabbalisten und Philosophen, sowie einiges über die Grundsätze und Lehren der ersten Urheber und Stifter der magischen und okkulten Wissenschaften.* Zweite Serie, *Ältere griechische Philosophen, Beriche über deren Leben, Lehren und Schriften.* F. E. Baumann, Bitterfeld und Leipzig. Empedocles, Heft 3, pp. 19.

A popular paraphrase of the fragments, with some fairly standard comment.

1902 PEITHMANN, Ernst Chr. Hch. 'Die Naturphilosophie vor Sokrates', *A.G.P.* 15, n.F. 8, pp. 214–63 and 308–42. Empedocles, pp. 231–45.

*1902 VON ARNIM, H. 'Die Weltperioden bei Empedokles', in *Festschrift Theodor Gomperz dargebracht zum siebzigsten Geburtstage...von Schülern Freunden Collegen*, pp. 16–27. A. Hölder, Wien.

Von Arnim argues against Zeller that there was only one world, and only one zoogony, from Sphere to Sphere, with the time of Strife's increase a mere preliminary sorting out of the elements.

Aristotle's 'in between time(s)', 8. Aristotle's 'equal times', 56 n. 7.

Fr. 35, 107. General interpretation of the cosmic cycle, 158ff., resuscitated by Solmsen, 163, details, especially 165–7, 170, 172–4, 177. Fr. 26, 211. Aristotle's supposed misunderstanding of ἀκίνητοι, 252–7. Reads θελημά in fr. 21. 6, 266. Failure to recognize the storm of the elements, 268.

*1902 WILAMOWITZ-MOELLENDORFF, Ulrich von. 'Lesefrüchte', *Hermes*, 37. Empedocles, no. 88, pp. 326–7.

Recognition of fr. 27a.

96 n. 4.

**1903 DIELS, Hermann. *Die Fragmente der Vorsokratiker, griechisch und deutsch.* The pagination is unchanged from the 5th edn by Walther Kranz, 3 vols., Weidmann, Berlin, 1934–7. Empedocles, vol. 1, pp. 276–375.

Accent of κρυφός, 20 n. 1. Emendation of Aet. 1. 7. 28, 38 n. 1. Emendation of fr. 100. 18, 112 n. 1. Kranz's emendation of fr. 35. 5, 112 n. 6. Wilamowitz's θρυφθεῖσα in fr. 17. 5, 165 n. 2. Wilamowitz's emendation of fr. 71. 4, 184 n. 3. Translation and interpretation of fr. 62. 4, 203–4. Punctuation of fr. 20. 2–3, 226. Fr. 21. 3–5, 226 n. 1. Fr. 21. 6, 266. Fr. 21. 3, 285. Fr. 67, 285 n. 2. Philo *De prov.* 2, p. 86 Aucher, 287, 294. Punctuation of Aet. 2. 6. 3, 288. Kranz on aether, 291. Panzerbieter's emendation of fr. 22. 6, 309. Diels' emendation of fr. 26. 7 omitted, 321 n. 3. Translation of αὐτὰ γὰρ ἔστιν ταῦτα, 324 n. 1. Bibliography, 344.

1903 DOERING, August. *Geschichte der griechischen Philosophie, gemeinverständlich nach den Quellen.* 2 vols. O. R. Reisland, Leipzig. Empedocles, vol. 1, pp. 197–216.

289.

1903 JOËL, Karl. *Der Ursprung der Naturphilosophie aus dem Geiste der Mystik*, in *Programm zur Rektoratsfeier der Universität Basel.* F. Reinhardt, Universitäts-Buchdruckerei, Basel. Pp. 94. Empedocles, pp. 65–8. This was also published separately by E. Diederichs, Jena, 1906. Pp. 198. Empedocles, pp. 107–13.

1903 LORTZING, Franz. 'Bericht über die griechischen Philosophen vor Sokrates für die Jahre 1876–1897', *J.A.W.* 116. Section 2, 'Zur Lehre und zum Leben des Empedokles', pp. 40–60.

1903 NIETZSCHE, see 1873.

*1904 (1905 on the outer cover) BODRERO, Emilio. *Il principio fondamentale del sistema di Empedocle, studio preceduto da un saggio bibliografico e dalla traduzione dei frammenti Empedoclei.* E. Loescher (Bretschneider und Regenberg), Roma. Pp. 173.

A fairly general work of criticism and reconstruction. The bibliography is quite some way from being 'almost exhaustive' as Leonard (1908), p. 13, supposes.

1904 JIRÁNI, Otakar. 'Sallustiova básen Empedoclea' ('Sallust's work on Empedocles', in Czech), *Listy Filologické*, Rošník 31, pp. 14–21.

An interesting attempt to trace some fragments and reminiscences of Sallust's work, which is referred to by Cicero, *ad Quintum fratrem* 2. 9. 3 (DK 31 A 27). (Other more general works on Sallust's *Empedoclea* have not been included in the present bibliography.)

1905 BODRERO, see 1904.

1905 FRANZÒ, Gregorio. *Sulle relazioni delle dottrine Sâmkhya coll'antica filosofia greca fino ad Anassagora*, in *Annali della R. Scuola Normale Superiore di Pisa, filosofia e filologia*, vol. 18, item 2. Pp. 58. Empedocles, pp. 44–53.

A sensible refutation of some earlier attempts to derive Empedocles' doctrines from Indian sources. (These attempts, which deal with Empedocles rather in passing, and very briefly, have not been included in the present bibliography: they may be found cited on pp. 7–11 of Franzò's work.)

*1905 WELLMANN, E. Article on Empedocles in *R.E.* Band 5 Halbband 10, coll. 2507–12.

92 n. 2. 102 n. 4. 289 n. 1.

*1905 WILAMOWITZ-MOELLENDORFF, U. von. 'Lesefrüchte', *Hermes*, 40. Empedocles, no. 118, pp. 165–70.

On Plutarch, *De esu carnium*, cf. frr. 154 and 154a.

49.

*1906 BEARE, John Isaac. *Greek theories of elementary cognition from Alcmaeon to Aristotle.* Clarendon Press, Oxford.

1906 HEIDEL, W. A. 'Qualitative change in pre-Socratic philosophy', *A.G.P.* 19, n.F. 12, pp. 333–79. Empedocles, pp. 365–7.

317 n. 2.

1906 JOËL, see 1903.

1906–8 KINKEL, Walter. *Geschichte der Philosophie, als Einleitung in das System der Philosophie.* 2 Teile, no more published. A. Töpelmann, Gieszen. Teil 1, *Von Thales bis auf die Sophisten*, Empedocles, pp. 173–92.

*1906 NESTLE, W. 'Der Dualismus des Empedokles', *Philologus*, 65, n.F. 19, pp. 545–57. Reprinted in *Griechische Studien, Untersuchungen zur Religion Dichtung und Philosophie der Griechen*, published by H. F. C. Hannsmann, Stuttgart, 1948, item 6, pp. 151–63.

This argues that *both* poems exhibit a thoroughgoing dualism between science and religion, a material and a spiritual world. Nestle draws some useful comparisons between the tone of the two poems. But the recognition of *daimones* as pieces of Love (cf. pp. 325 ff. above) would considerably lessen Nestle's 'dualism'.

328 n. 3.

1906 RIVAUD, Albert. *Le problème du devenir et la notion de la matière dans la philosophie grecque depuis les origines jusqu'à Théophraste.* F. Alcan, Paris. Empedocles, pp. 179–89.

*1906 Якуванис, Гэнрихъ. *Эмпедоклъ философъ, врачъ и чародей, данныя для его пониманія и оцьнки.* Типографія Императорскаго Университета Св. Владимира, Киевъ. [YAKUVANIS, Henry. *Empedocles philosopher, doctor and wonder-worker, evidence for his interpretation and evaluation.* Press of the Imperial University of St Vladimir, Kiev.] Pp. 134.

This contains first a study of Empedocles' life and times and a fairly generalized discussion of the characteristics in particular of Empedocles' religious ideas. There is then a verse and prose translation of the fragments, the latter supplied with short notes which are mostly but not always unoriginal. The verse translation is reprinted in an edition of Lucretius by various authors, ed. F. Petrovsky, Printing House of the Academy of Sciences of the U.S.S.R., 1945, vol. 2, pp. 663–95.

1907 BAKEWELL, Charles Montague. *Source book in ancient philosophy.* C. Scribner, New York (in some copies overprinted with T. F. Unwin, London). Empedocles, pp. 43–8.

This has translations of a few fragments and secondary sources.

*1907 GILBERT, Otto. *Die meteorologischen Theorien des griechischen Altertums.* B. G. Teubner, Leipzig. Empedocles, pp. 105–24.

133 n. 1. 210 n. 3. 289 n. 3.

1907 JACKSON, Henry. The abstract of a paper on Empedocles fr. 17 in *P.C.P.S.* 76, p. 6.

This is an implausible attempt to rearrange the order of lines in fr. 17 and to interpret Ἀφροδίτη therein not as Empedocles' φιλότης but as the goddess of a rival, namely Parmenides.

*1907 JOBST, Franz Xaver. *Über das Verhältnis zwischen Lukretius und Empedokles.* Dissertation. M. Steinebach, München. Pp. 61.

In the main this is a sensible enumeration of verbal and doctrinal parallels. It outdates earlier works, but should be supplemented by Bignone's notes and by Kranz (1943). See also Bollack (1959).

1908 ADAM, James. *The religious teachers of Greece.* Gifford lectures, edited by Adela Marion Adam. T. and T. Clark, Edinburgh. Empedocles, pp. 244–55.

1908 ADAMSON, Robert. *The development of Greek philosophy*, edited by W. R. Sorley and R. P. Hardie. W. Blackwood, Edinburgh and London. Empedocles, pp. 55–8.

1908 LEONARD, William Ellery. *The fragments of Empedocles translated into English verse.* The Open Court Publishing Company, Chicago. Pp. 92.

This includes a Greek text, an introduction and some notes. The

observations in the notes and commentary are either second-hand or of a pretty general character.
Bibliography, 359.

**1908 MILLERD, Clara Elizabeth. *On the interpretation of Empedocles.* Dissertation. The University of Chicago Press, Chicago. Pp. 94.

This is on the whole a clear, careful and intelligent consideration of several problems in the reconstruction of Empedocles' thought.
Rest and movement, 5–6. Aristotle's 'in between time(s)', 8. Aristotle's supposed misunderstanding of the condition of the elements under total Strife, 17. Misunderstanding of Simplicius' interpretation of Aristotle on rest and movement, 29 n. 3. The temporal division of the cycle, 56 n. 6. General characterization of the quality of Empedocles' thought, 71–4. Objection to Burnet's description of Strife during the Sphere, 128. Description of the action of increasing Love and increasing Strife, 128–9, 141–3. Application of Millerd's general characterization of the quality of Empedocles' thought, 143–4. The condition of the elements under total Strife, 146 n. 1. Frr. 26a and 27, 149. General interpretation of the cosmic cycle, 158. Criticism of Zeller's interpretation of ἐπὶ τῆς φιλίας or φιλότητος, 176 n. 2. Zoogony, 198. Fr. 62. 4, 203. False notion of the οὐλοφυῆ, 205. Mistranslation of Aet. 5. 26. 4, 206–7. Disbelieves Simplicius' account of the zoogony, 212. Aristotle's supposed misunderstanding of ἀκίνητοι, 252–3. False interpretation of Aristotle's criticism of the *dine* at *De caelo* 295a29–32, 262. Failure to recognize the storm of the elements, 268. The first separations of the elements, 289 n. 3. Aristotle on like to like, 301 n. 2. Empedocles' use of like to like, 312 n. 4.

1908 NESTLE, Wilhelm Albert. *Die Vorsokratiker, in Auswahl übersetzt und herausgegeben*, 2nd edn, E. Diederichs, Jena, 1922. This second edition is reissued as *Die griechischen Philosophen, deutsch in Auswahl mit Einleitungen von W.N.*, Band 1, *Die Vorsokratiker*, E. Diederichs, Jena, 1929. The remaining volumes of this set were published as Band 2, *Die Sokratiker* (1923) and Bände 3 and 4 *Die Nachsokratiker* (1923). Empedocles, a short commentary, pp. 42–6, and a translation of the fragments, pp. 138–55.

1908 NESTLE, W. 'Bemerkungen zu den Vorsokratikern und Sophisten', *Philologus*, 67, n.F. 21, pp. 531–81. Empedocles, pp. 538–43.

Remarks on the language and interpretation of a few fragments.
131–2.

1908 SCHARNAGL, Theobald. *Der Philosoph Empedokles in seiner Eigenschaft als Dichter*, in *Programm des Kommunal-Ober-Gymnasiums in Komotau*, part 1 in the issue *veröffentlicht am Schlusse des Schuljahres 1907/1908*, pp. 1–16, part 2 in the issue *1908/1909*, pp. 1–19. Im Selbstverlage der Anstalt, Druck von F. Spania, Komotau.

After an introduction (part 1, pp. 3–7) this study contains three sections.

The first section (part 1, pp. 7–11) offers a short and conventional account of ancient reports on Empedocles' personal characteristics. The second section (part 1, pp. 11–16) gathers quite a useful number of ancient remarks on the qualities of Empedocles' verse, and offers some comment. The final section (part 2) surveys a number of fragments, but fails to offer any enlightening comment. The whole study is of no particular intrinsic value, but has some significance as a contribution to a field that has been largely neglected.

1908–11 WUNDT, Max. *Geschichte der griechischen Ethik*. 2 vols. W. Engelmann, Leipzig. Empedocles, vol. 1, pp. 143–6.

*1909 DIÈS, Auguste. *Le cycle mystique, la divinité, origine et fin des existences individuelles dans la philosophie antésocratique*. F. Alcan, Paris. Empedocles, pp. 83–99.

55 n. 4. 105 n. 5. 128.

*1909 LOVEJOY, Arthur O. 'The meaning of φύσις in the Greek physiologers', *P.R.* 18, pp. 369–83. Empedocles, pp. 371–4.

Lovejoy argues that in fr. 8 φύσις means 'permanent nature' and θανάτοιο τελευτή means 'end *of* death' not 'end *in* death'. Lovejoy is followed by Burnet, *EGP*, p. 205 n. 4, and in part by Ross, note on *Met.* 1015a1. He is opposed by Cherniss, *ACP*, p. 243 n. 114.

*1909 PEARSON, A. C. A review of the second edition of Diels' *Fragm. der Vors.*, *C.R.* 23, pp. 48–50.

This contains comments on the language of a few fragments.

233 n. 1. 324 n. 1.

1909 SCHARNAGL, see 1908.

1909 VON ARNIM, Hans. 'Die europäische Philosophie des Altertums', part Bi of *Allgemeine Geschichte der Philosophie*, which is Teil 1 Abteilung 5 of *Die Kultur der Gegenwart, ihre Entwicklung und ihre Ziele*, edd. Paul Hinneberg *et alii*. 2nd edn, B. G. Teubner, Leipzig, 1913. Empedocles, pp. 136–9.

1910 BAUCH, Bruno. *Das Substanzproblem in der griechischen Philosophie bis zur Blütezeit, seine geschichtliche Entwicklung in systematischer Bedeutung*. C. Winter, Heidelberg. Empedocles, pp. 64–74.

1910 EISLER, Robert. Mitteilungen und Hinweise, 'Bildopfer bei Empedokles', *Archiv für Religionswissenschaft*, 13, pp. 625–6.

Discussion of fr. 128.

1910 GOEBEL, Karl. *Die vorsokratische Philosophie*. C. Georgi, Bonn. Empedocles, pp. 191–226.

1910 HEIDEL, William Arthur. 'Περὶ φύσεως, a study of the conception of nature among the Pre-Socratics', *Proceedings of the American Academy of*

Arts and Sciences, 45, pp. 79–133. Empedocles, especially pp. 98 and 102–3.

1911 DEUSSEN, Paul. *Allgemeine Geschichte der Philosophie, mit besonderer Berücksichtigung der Religionen*, 2 Bände, 6 Abteilungen (1894–1920). F. A. Brockhaus, Leipzig. Band 2 Abteilung 1, *Die Philosophie der Griechen* (1911). Empedocles, pp. 110–24.

n.d. [1911] FISCHER, A. 'Die Grundlehren der vorsokratischen Philosophie', vol. 1, pp. 9–73 of *Grosse Denker*, edd. Ernst von Aster *et alii*, 2 vols. Quelle und Meyer, Leipzig. Empedocles, pp. 51–6.

*1911 GILBERT, Otto. *Griechische Religionsphilosophie*. W. Engelmann, Leipzig. Empedocles, pp. 197–225.

This includes a fairly lengthy discussion of Empedocles' principal physical theories.

Misapplication of Plutarch's description of movement under total Strife, 32. Misapplication of fr. 35 to a sudden break-up of the Sphere, 56. Aristotle's 'equal times', 56 n. 7. General characterization of the quality of Empedocles' thought, 72. On necessity, 248–9. Misapplication of fr. 26. 1 to the seasons, 317.

1911 LORTZING, F. Review of Millerd (1908), *B.Ph.W.* 31, no. 22, coll. 665–73.

1911 SANGERMANO, B. Luigi. *Empedocle, vita e frammenti dei poemi*. V. Sirchia, Girgenti. Pp. 32.

This contains Scinà's 1813 translation, not overtly acknowledged as such, with a short introduction.

1911 ZIEGLER, Konrat. 'Die Rede des Aristophanes in Platons Symposion', in *Verhandlungen der 51 Versammlung deutscher Philologen und Schulmänner in Posen . . . 1911*, pp. 41–2. B. G. Teubner, Leipzig, 1912.

This is a brief run-through of a subject treated at greater length by Ziegler in 1913, *q.v.*

*1912 CORNFORD, Francis MacDonald. *From religion to philosophy, a study in the origins of western speculation*. E. Arnold, London. Empedocles, especially pp. 63, 150–2, and 224–42.

Placing of the golden age, 76. Love's position under total Strife, 104, n. 1 and during the Sphere, 127–9. The nature of Love, 129 n. 2. Fr. 17. 19–20, 131 n. 5. How the poem was read, 141 n. 1. Fr. 30. 1, 274 n. 1. Like to like, 312. The nature of the *daimon*, 325, 328–36.

1912 HICKS, R. D. Article on Empedocles in Hastings' *Encyclopaedia of Religion and Ethics*, vol. 5, pp. 292–4.

*1912 KRANZ, Walther. 'Empedokles und die Atomistik', *Hermes*, 47, pp. 18–42.

Empedocles is portrayed as a forerunner of Atomism, principally in virtue of his use of μόρια and pores.

159. 173.

1912 KRANZ, Walther. 'Die ältesten Farbenlehren der Griechen', *Hermes*, 47, pp. 126–40. Empedocles, pp. 126–8.

Kranz accepts Empedocles as founder of the theory of four primary colours, Aet. 1. 15. 3 (DK 31A92), which he therefore finds in fr. 23, despite the contrary implication of Theophrastus *De sens.* 59, cf. 17.

1912 ZIEGLER, see 1911.

1913 VON ARNIM, see 1909.

1913 DIETERICH, see 1893.

1913 HEATH, Sir Thomas. *Aristarchus of Samos, the ancient Copernicus, a history of Greek astronomy to Aristarchus together with Aristarchus's treatise on the sizes and distances of the sun and moon, a new Greek text with translation and notes.* Clarendon Press, Oxford. Empedocles, pp. 86–93.

*1913 HEIDEL, William Arthur. 'On certain fragments of the pre-Socratics, critical notes and elucidations', *Proceedings of the American Academy of Arts and Sciences*, 48, pp. 681–734. Empedocles, pp. 725–9.

Heidel distinguishes the four elements as source of perception from the soul, and reads ἄξει for αὔξει and ἔθνος for ἦθος in fr. 110. 4–5.

315 n. 2.

1913 HERBERTZ, Richard. *Das Wahrheitsproblem in der griechischen Philosophie.* G. Reimer, Berlin. Empedocles, pp. 31–4.

*1913 LACKENBACHER, Hans. 'Beiträge zur antiken Optik', *W.S.* 35, pp. 34–61. Empedocles, pp. 39–45.

1913 MIELI, Aldo. 'Le teorie delle sostanze nei Presokratici Greci', *Scientia* (this periodical has the sub-titles *Rivista di Scienza* and *Organo* [later *Rivista*] *internazionale di sintesi scientifica*), vol. 14, anno 7, in two parts: Parte Prima, 'Dalle prime speculazioni fino ad Empedokle', pp. 165–81, and Parte Seconda, 'Anaxagora e gli Atomisti', pp. 329–44. There is a translation into French in the *Supplément*, pp. 95–112 and 195–211. Empedocles, pp. 175–9 (= Supplément, pp. 106–10).

A loose and largely unoriginal account, parts of which are repeated by Baccou (1951).

1913 NIETZSCHE, see 1873.

1913 RITTER and PRELLER, see 1838.

*1913 ZIEGLER, Konrat. 'Menschen- und Weltenwerden, ein Beitrag zur Geschichte der Mikrokosmosidee', *Neue Jahrbücher für das klassische Altertum Geschichte und Deutsche Literatur, und für Pädagogik*, 31, pp. 529–73.

The origins of Aristophanes' speech in the *Symposium* and of the *Politicus* myth are traced to Empedocles and to Greek and non-Greek sources, including *Genesis*. The remarks on Empedocles are largely vitiated by acceptance of the single evolutionary sequence in Aetius.

197, 203. 216. 227 n. 3. 228 n. 3. 228 n. 5.

1914 BENN, see 1882.

*1914 BURNET, John. *Greek Philosophy Part 1, Thales to Plato*. No more published. Macmillan, London. Empedocles, pp. 71–5.

105. 114. 124.

1914 ENGLISH, Robert B. 'Empedoclean psychology', *T.A.P.A.* 45, p. xvi.

This is an abstract of what was apparently an attempt to portray the transmigrating soul as formed of the elements.

*1915 BIGNONE, Ettore. Comunicazioni, 'Empedocle ed Epicuro', *B.F.C.* 21, pp. 156–61.

This traces Empedoclean borrowings by the Epicureans, and argues in particular that the wombs at the start of Epicurus' zoogony were copied from Empedocles' whole-natured creatures and were followed in Epicurus by monsters made of human parts only.

215–16.

1915 NORDEN, Eduard. *Ennius und Vergilius, Kriegsbilder aus Roms grosser Zeit*. B. G. Teubner, Leipzig und Berlin. 'Ennius Empedocleus', pp. 10–18.

This subject is treated more fully by Bignone (1929).

**1916 BIGNONE, Ettore. *I poeti filosofi della Grecia: Empedocle, studio critico, traduzione e commento delle testimonianze e dei frammenti*, in the series *Il Pensiero Greco*, vol. 11. Bocca, Torino. Pp. xi, 688. Reprinted in the series *Studia Philologica*, vol. 1, by 'L'Erma' di Bretschneider, Roma, 1963.

CHAPTER 2. Rest and movement, 4–6. Aristotle's 'in between time(s)', 8. On *De caelo* 301 a 11–20, 10 n. 1, 14 n. 2. Aristotle's supposed misunderstanding of the condition of the elements under total Strife, 17. On μονίη fr. 27. 4, 22. Thinks Eudemus was contradicting Aristotle, 30 n. 4. Weight, 34.

CHAPTER 3. On Plutarch's *De esu carnium*, 49 n. 5.

CHAPTER 4. Temporal division of the cycle, 56–7. Aristotle's 'equal times', 56–7, 60 n. 1. On the *Politicus* myth, 90–1. 'Four periods', 92 n. 2. Wavers over the description of Empedocles in the *Sophist*, 93.

CHAPTER 5. The position of Love, 104 n. 1. Two whirls, 120 n. 2.

CHAPTER 6. Strife's position during the Sphere, 128. Fr. 17. 19–20, 130–1, 131 n. 5. Attempts to distinguish two forms of fr. 59, 137 n. 4.

Follows Millerd's description of the action of increasing Love and increasing Strife, 141. Lucretius' supposed imitation of fr. 26, 142. ἔτι ἔξωθεν in the *Timaeus*, 145 n. 3.
CHAPTER 7. The condition of the elements under total Strife, 146 n. 1. Frr. 26a and 27, 149, 152. Lucretius' use of frr. 26a and 27, 153–4.
CHAPTER 8. General interpretation of the cosmic cycle, 158–9. Aristotle's meaning at *De caelo* 301a11–20, 176. Fiery birds and fiery fish, 190.
CHAPTER 9. Zoogony, 198. On earth in fr. 98, 201. Aristotle's description of Love's action at *De anima* 430a30, 202. On the composition of the οὐλοφυῆ, 206. Supports Simplicius' account of the zoogony, 212. But exaggerates its import, 215–16. Fr. 20, 225. On the giants in the *Symposium*, 228 n. 4. Pangenetic οὐλοφυῆ, 231–4. 'Males' or 'men' in fr. 62, 232. Fr. 59. 3, 235.
NOTES. Aristotle's supposed misunderstanding of ἀκίνητοι, 252–3. False interpretation of Aristotle's criticism in the *dine* at *De caelo* 295a29–32, 262. Fr. 21. 6, 266. Failure to recognize the storm of the elements, 268. Fr. 53, 269–70. Fr. 67.2, 285 n. 2. Emendation of Aetius 2. 6. 3, 290. On aether, 291. The beginning of rotation, 296–7. Like to like, 312. Fr. 26. 1–2, 314, 316, 317 n. 2. Fr. 26. 7, 320–1. Fr. 59. 1, 325 n. 1.

1916 BIGNONE, Ettore. Comunicazioni, 'Due versi di Arato attribuiti erroneamente ad Empedocle (Diels[3] 154b)', *B.F.C.* 22, pp. 151–2.

1916 KRANZ, Walther. 'Über Aufbau und Bedeutung des Parmenideischen Gedichtes', *S.B.B.* (1916), no. 47. A short note on Empedocles and Pausanias, p. 1168.

1917 PIZZAGALLI, A. M. 'Il filosofo di Agrigento', *Atene e Roma*, anno 20, pp. 155–60.

1917 VEAZIE, Walter Broad. *Empedocles' psychological doctrine in its original and in its traditional setting*. Pp. 27. Dissertation of Columbia University, 1917. Printed in *Archives of Philosophy, Psychology and Scientific Method* (a continuation of *Archives of Philosophy*), no. 14 (New York, 1922). This was also issued separately by Columbia University Press, New York, 1922. (The details of this issue appear to differ slightly from copy to copy.)
This is a light-weight discussion of Empedocles' understanding of φρόνησις compared especially with Hippocrates, and of the handling of Empedocles' theory of perception in Plato, Aristotle and the doxographers.

1918 BEARDSLEE Jr., John Walter. *The use of φύσις in fifth-century Greek literature*. Printed dissertation, Chicago. The University of Chicago Press, Chicago, Illinois. Pp. 126. Empedocles, pp. 13, 86–7 *et alibi*.

1918 BIGNONE, Ettore. Comunicazioni, 'La teoria del peso in Empedocle ed Anassagora', *B.F.C.* 24, pp. 97–100.

1918 ROBIN, Léon. A review of Bignone (1916), *R.E.G.* 31, pp. 460–6.

1918 ROLLAND, Romain. *Empédocle d'Agrigente et l'Âge de la Haine*, in the series *Cahiers du Carmel*, 1ère série, no. 1, La maison française d'art et d'édition, Paris. Pp. 46. This is reprinted as *Empédocle d'Agrigente suivi de l'Éclair de Spinoza*, Éditions du Sablier, Paris, 1931, pp. 17–104. This edition claims that Rolland's essay 'est présenté ici dans sa forme définitive', but there appear in fact to be no changes.

This work is really a series of personal reflections built around Empedoclean reminiscences and allusions.

1918 VEAZIE, Walter, 'The meaning of φύσις in early Greek philosophy', in the series *Studies in the history of ideas*, edited by the Department of Philosophy of Columbia University, vol. 1, pp. 27–42. Empedocles, pp. 39–40.

1919 ZELLER, see 1844.

*1920 HIRSCHBERG, Julius. 'Die Seh-Theorien der griechischen Philosophen in ihren Beziehungen zur Augenheilkunde', *Zeitschrift für Augenheilkunde*, 43 = *Festschrift für Hermann Kuhnt*, pp. 1–22. Empedocles, pp. 7–10.

A quite useful summary of ancient theories, giving special attention to Plato's theory of συναύγεια, with which Empedocles is associated.

1920–48 RUGGIERO, Guido de. *Storia della filosofia*. 4 parts issued as 12 volumes. Part 1 in 2 vols., *La filosofia greca*. 2nd edn, 'corretta e ampliata', G. Laterza, Bari, 1921. Empedocles, vol. 1, pp. 80–3.

1920 STACE, Walter Terence. *A critical history of Greek philosophy*. Macmillan, London. Empedocles, pp. 81–5.

1920 ZELLER, see 1844.

1921 JOËL, Karl. *Geschichte der antiken Philosophie*, *Grundriss der philosophischen Wissenschaften*. J. C. B. Mohr, Tübingen. Empedocles, pp. 488–565.

*1921 KAFKA, Gustav. *Die Vorsokratiker*, *Geschichte der Philosophie in Einzeldarstellungen*, Abteilung 2, *Die Philosophie des Abendlandes im Altertum*, Band 6. E. Reinhardt, München. Empedocles, pp. 84–103.

72 n. 3. 197–8.

1921 PHILIPPSON, Robert. Review of Bignone (1916), *B.Ph.W.* 41, no. 40, coll. 937–45.

227 n. 1.

1921 ROHDE, see 1894.

1921 RUGGIERO, see 1920.

1921 WRIGHT, Jonathan. 'An Italian book on Empedocles', *The Scientific Monthly*, 12, pp. 340–8.

This consists of some rather high-flown remarks, occasioned by the appearance of Bignone's work, on Empedocles' environment and the character of his thought.

1922 CAPELLE, Wilhelm. *Die Geschichte der Philosophie.* 2nd edn, Sammlung Göschen, Band 857, W. de Gruyter, Berlin, 1953. This work is a series of 11 short volumes, of which the first 4 are by Capelle and bear the sub-title, *Die griechische Philosophie.* Teil 1, *Von Thales bis Leukippos.* Empedocles, pp. 93–112.

289 n. 3.

1922 NESTLE, see 1908.

1922 VEAZIE, see 1917.

1923 BURNET, John. 'L'expérimentation et l'observation dans la science grecque', *Scientia* (this periodical has the sub-titles *Rivista di Scienza* and *Rivista internazionale di sintesi scientifica*), vol. 33, anno 17, pp. 93–102.

Pp. 94–5 treat Empedocles' use of the clepsydra as an experiment 'complètement scientifique de caractère' designed to establish the corporeality of air.

*1923 FRAENKEL, Hermann. 'Homerische Wörter', in Ἀντίδωρον, *Festschrift für Jakob Wackernagel. . .gewidmet von Schülern, Freunden und Kollegen.* Vandenhoeck und Ruprecht, Göttingen. Discussion of ἐλιάσθης, fr. 2. 8, on pp. 275–7.

n.d. [1923–31] FULLER, Benjamin Apthorp Gould. *History of Greek Philosophy.* 3 vols. H. Holt, New York. Vol. 1, *Thales to Democritus.* This first volume was also published by J. Cape, London. Empedocles, vol. 1, pp. 180–201.

1923 GRABOWSKI, Franz. *Empedokles und Leukipp-Demokrit mit besonderer Berücksichtigung des Anaxagoras.* Unpublished dissertation, Breslau. Pp. 66. An *Auszug* of two pages was published by the Hochschulverlag, Breslau.

I regret that I have been able to see only the *Auszug* of this work. The University Library of Breslau (=Wrocław) does not have the whole dissertation, and I have been unable to trace a copy elsewhere. From the printed summary, the thesis appears to have been a not uninteresting attempt to explain the relevant theories in accordance with the chronological sequence: Empedocles, Leucippus, Anaxagoras, Democritus.

*1923 KAFKA, Gustav. 'Zur Physik des Empedokles', *Philologus*, 78, n.F. 32, pp. 202–29.

Several details of the physical system are adduced to prove that

Empedocles' thought was vague and inconsistent. Exaggerated, but with some useful points.

Speed, 46, 48. General characterization of the quality of Empedocles' thought, 72, 73. Zoogony, 197–8. Fr. 62. 4, 203. The first separations of the elements, 289 n. 1.

1923 POWELL, J. U. 'The simile of the clepsydra in Empedocles', *C.Q.* 17, pp. 172–4.

This account of fr. 100 confuses the clepsydra with a water-clock, and supposes that ῥινῶν means 'skin'.

*1923 ROBIN, Léon. *La pensée grecque et les origines de l'esprit scientifique*, in the series *L'évolution de l'humanité, synthèse collective*. There is the same pagination in the 'édition revue et corrigée', published by La Renaissance du Livre, Paris, 1932; in the 'édition revue et corrigée avec une bibliographie méthodique nouvelle', published by A. Michel, Paris, 1948; and in the 'édition nouvelle avec une bibliographie complémentaire par Pierre-Maxime Schuhl', published by A. Michel, Paris, 1963.

Rest and movement, 4. Weight, 34. General characterization of the quality of Empedocles' thought, 71–2, 73. Placing of the golden age, 76 n. 2. Position of Love, 105 n. 5. Fr. 17. 19–20, 130. The condition of the fully separated elements, 146. Aristotle's meaning at *De caelo* 301a11–20, 176. Zoogony, 198 n. 3. The first separations of the elements, 289 n. 3.

*1923 ROSTAGNI, Augusto. 'Il poema sacro di Empedocle', *R.F.I.C.* n.s. 1, pp. 7–39. Reprinted as chapter 8, pp. 183–247, 'Il poema pitagorico di Empedocle e la storia dell'anima', in *Il verbo di Pitagora*, Bocca, Torino, 1924.

A moderately useful account of supposedly Pythagorean traits in the *Katharmoi*.

1923 WACHSMUTH, Günther. 'Empedokles der faustische Mensch vor Christus', *Das Goethaneum, Internationale Wochenschrift für Anthroposophie und Dreigliederung*. In two instalments: part 1, Jahrgang 3, no. 18 (9 Dezember 1923), pp. 140–2; part 2, Jahrgang 3, no. 19 (16 Dezember 1923), pp. 147–9. Part 1 is reprinted in *Anthroposophie und Das Goethaneum, Wochenschrift für freies Geistesleben*, Jahrgang 5, Nummer 32 (7 Februar 1924), pp. 1–2, and Jahrgang 5, Nummer 33 (14 Februar 1924), pp. 1–2.

Part 1 contains a brief sketch of Empedocles' cosmic teaching, and several long quotations from Lommatzsch (1830), the whole designed to show Empedocles and Faust as forerunners of Rudolf Steiner. Part 2 contains a brief summary of Empedocles' theories of breathing, vision and the like, and then a short mention of the *Katharmoi* leads on to Rudolf Steiner again.

1923 WINDELBAND, see 1888.

*1924 LAST, Hugh. 'Empedokles and his klepsydra again', *C.Q.* 18, pp. 169–73.

This shows that the clepsydra in fr. 100 is not a water-clock but a contrivance for moving liquids from one vessel to another, and explains ἠθμοῖο, line 19, in the light of this. Last still supposes that the comparison is with ῥινῶν meaning 'skin'.

1924 REYMOND, Arnold Frédéric. *Histoire des sciences exactes et naturelles dans l'antiquité gréco-romaine.* 2nd edn, Presses Universitaires de France, Paris, 1955. Empedocles, pp. 50–4.

1924 ROSTAGNI, see 1923.

*1924 RUPPRECHT, Karl. Miscelle, 'Empedokles fr. 133', *Philologus*, 79, n.F. 33, p. 112.

This reads ἐλαχίστη for μεγίστη from Lucretius' *proxima*, 5. 103. Opposed by Thomas (1924), p. 28.

*1924 THOMAS, Helmuth Paul Fritz. *Sprachliche Untersuchungen zu Empedokles.* Unpublished dissertation. Leipzig. Pp. 76.

A thorough and sometimes instructive analysis of some features of Empedocles' use of language. There are comparable later studies by Traglia (1952), Gerke (1953), Munding (1954), Buhl (1956), and Groningen (1958).

109 n. 5. Bibliography, see preceding entry.

1924 WACHSMUTH, see 1923.

1925 HOWALD, Ernst. *Die Anfänge der europäischen Philosophie.* C. H. Beck, München. 'Empedokles, Anaxagoras, Demokrit', pp. 76–88.

1926–32 BRÉHIER, Émile. *Histoire de la philosophie.* 7 parts in 2 vols. The editions or re-issues of this work are not numbered; a recent publication is by the Presses Universitaires de France, Paris, 1941–7. Empedocles, vol. 1, part 1, pp. 67–70.

*1926 CORNFORD, F. M. 'Mystery religions and pre-Socratic philosophy', in *The Cambridge Ancient History*, vol. 4, chapter 15. Empedocles, pp. 563–9. 325. 328–36.

1926 UEBERWEG, see 1862.

1927 BOYANCÉ, P. 'Sur quelques vers de Virgile (*Georg.* II v. 490–2)', *Revue Archéologique*, série 5, tome 25, pp. 361–79.

This deals largely with Empedocles' influence.

1927 LENOIR, Raymond. 'La doctrine des quatre éléments de la philosophie ionienne', *R.E.G.* 40, pp. 17–50. Empédocles, p. 37.

This is a far-fetched thesis which works out a numerical code for the names of the elements, of Love and Strife and so on, by numbering the letters of each word according to their place in the alphabet.

1928 NESTLE, see 1883 Zeller.

1928 SCOON, Robert Maxwell. *Greek philosophy before Plato.* Princeton University Press, Princeton. Empedocles, pp. 82–94.

198 n. 3.

1928 TKATSCH, see 1932.

1928 ZELLER, see 1883.

1929 BIGNONE, Ettore. 'Ennio ed Empedocle', *R.F.I.C.* n.s. 7, pp. 10–30. Reprinted in *Studi sul pensiero antico*, L. Loffredo, Napoli, 1938, chapter 7, pp. 327–55.

This argues for the identification with Strife of Ennius' *corpore Tartarino prognata palude virago*, *Ann.* 521 Vahlen = fr. 357 Valmaggi, and for an imitation of fr. 17. 18 in the following line, *cui par imber et ignis, spiritus et gravis terra.*

Other discussions of the Empedoclean content of Ennius' verses have not been listed in the present bibliography. Mention may be made here of: WOLF-HARTMUT, Friedrich, 'Ennius-Erklärungen', *Philologus* 97 (1948), 277–301: Empedocles, pp. 291–3. FRAENKEL, Hermann, 'Zur Discordia des Ennius', *ibid.* p. 354.

131.

*1929 CLARK, Gordon Haddon. *Empedocles and Anaxagoras in Aristotle's De anima.* Printed dissertation of the University of Pennsylvania, Philadelphia. Pp. 50.

Pp. 11–41 contain an extended discussion of Aristotle's references to Empedocles in the *De anima.* The useful points are not easily extracted from his confusing mixture of detail and unhelpful generality.

302 n. 1. 329 n. 3.

1929 NESTLE, see 1908.

1929 RIVAUD, Albert. *Les grands courants de la pensée antique.* Librairie A. Colin, Paris. Empedocles, pp. 51–4.

**1929 WILAMOWITZ-MOELLENDORFF, Ulrich von. 'Die Καθαρμοί des Empedokles', *S.B.B.* 1929, no. 27, pp. 626–61. This is reprinted in *Kleine Schriften*, 2 vols., Weidmann, Berlin, 1935–7, vol. 1, pp. 473–521.

This contains a most useful study of the fragments attributed by Diels to the *Katharmoi.* Wilamowitz then argues that the two poems conflict and that the *Katharmoi* was written second under Pythagorean influence.

322 n. 5.

1930 BAKKER, C. 'Iets over den invloed van Empedokles en Aristoteles op de geneeskunde en de magie bij de oude Grieken en Romeinen', *Bijdragen*

tot de Geschiedenis der Geneeskunde = Uitgave van het Nederlandisch Tijdschrift voor Geneeskunde, Amsterdam, Jahrgang 10, pp. 29–44.

Pp. 36–8 contain some brief and uninformative comments on Empedocles' theory of the elements and soul.

1930 BURNET, see 1892.

1930 DEICHGRAEBER, Karl. Review of Ernst Wenkebach, *Beiträge zur Textgeschichte der Epidemienkommentare Galens*, in *Gnomon*, 6, pp. 368–76. Empedocles, pp. 375–6.

On fr. 67.

285 n. 2.

*1930 HORNA, Constantinus. 'Empedocleum', *W.S.* 48, pp. 3–11.

This is a discussion of the number of verses, division of books, etc., including a new manuscript reading of fr. 134 and a supposed reference from Aristotle to the 'Ιατρικά.

Bibliography, 346.

1930 SHARPE, Rev. C. H. 'The shoes of Empedocles', *Classical Association Proceedings*, 27, pp. 9–10.

Some general remarks on the up-to-dateness of Empedocles, of no permanent value.

1930 TANNERY, see 1887.

*1930 WILAMOWITZ-MOELLENDORFF, U. von. 'Lesefrüchte', *Hermes*, 65. Empedocles, no. 269, pp. 245–50.

In this short space Wilamowitz deals concisely with the language of several fragments. His arguments deserve the closest attention.

Emendation of fr. 35. 3–4, 109–10. Emendation of fr. 9, 165 n. 6. Order of frr. 92 and 62, 204–5. On repeated verses, fr. 17. 35 etc., 224. Revision of the order of verses in fr. 21, 226 n. 1. Fr. 21. 6, 266–7. Γένηται and λαμπρός as glosses, 276, 284–6. Emendation of fr. 39. 2, 286 n. 4. Attempted extrusion of fr. 26. 7, 323.

1930 WILAMOWITZ-MOELLENDORFF, Ulrich von. 'Die Gedichte des Empedokles', *Forschungen und Fortschritte*, Jahrgang 6, no. 4, pp. 50–1.

Some very general remarks on the conflict between Empedocles' physical and religious thought adapted from *S.B.B.* 1929.

*1931 REGENBOGEN, Otto. *Eine Forschungsmethode antiker Naturwissenschaft*, in *Quellen und Studien zur Geschichte der Mathematik Astronomie und Physik*, edd. Otto Neugebauer *et alii*, published by J. Springer, Berlin, Abteilung B Studien, Band 1, Heft 2, pp. 131–82. Empedocles' use of analogy, pp. 148–50. *Beilage* 4, 'Der Klepsydravergleich des Empedokles', pp. 180–2. Reprinted in *Kleine Schriften*, C. H. Beck, München, 1961, pp. 141–94. Empedocles, pp. 158–60 and 192–4.

1931 ROLLAND, see 1918.

1931 TRAGLIA, Antonio. *Riflessi omerici nei frammenti di Empedocle.* Arte della Stampa di L. Stracca, Pescara. Pp. 101.

E. Turolla, *B.F.C.* 38, n.s. 2 (1932), 45, rightly concludes his review of this work, 'Il lavoro, in realtà non giunge in fondo a conclusioni che non siano ovvie... Diligenza, esattezza, e anche un certo acume lasciano sperare di meglio.' Cf. Traglia (1952).

1931 TUCKER, G. M. 'Empedocles in exile', *C.R.* 45, pp. 49–51.

This draws out some consequences of interpreting χαίρετε in fr. 115 as 'farewell'.

*1931 WACKERNAGEL, J. 'Orthographica und Verwandtes', *Philologus*, 86, n.F. 40. Section 1. ''Ιδρώς und Zubehör', pp. 133–40.

This supports the form εἶδος in frr. 21. 4, 62. 5, 73. 2.

204 n. 2.

1932 ROBIN, see 1923.

1932 SAENGER, Eduard. 'Empedokles', *Wiener Blätter für die Freunde der Antike*, Jahrgang 8, pp. 106–10.

This contains some brief remarks on the contents of both poems, of no particular value, with verse translations of a few fragments.

1932 SOUILHÉ, Joseph. 'L'énigme d'Empédocle', *Archives de Philosophie*, 9, cahier 3, which bears the sub-title *Études d'histoire de la philosophie*, pp. 1–23.

An unoriginal sketch of the fragments designed to show that the two poems are a unity in that the *Katharmoi* draws out the moral implications of the theories of the physical poem.

*(1928–)32 TKATSCH, Jaroslaus. *Die arabische Übersetzung der Poetik des Aristoteles, und die Grundlage der Kritik des griechischen Textes.* Vol. 2 aus dem Nachlass herausgegeben von A. Gudeman und Th. Seif, Hölder–Pichler–Tempsky, Wien und Leipzig. Empedocles, vol. 2, pp. 128a–131a.

This argues that Aristotle has deliberately altered fr. 35. 15 in order to correct Empedocles' use of ϛωρός. Cf. O'Brien (1965).

*1933 RATHMANN, Wilhelm Walter. *Quaestiones Pythagoreae Orphicae Empedocleae.* Printed dissertation. Typis impressit E. Klinz, Halis Saxonum. Empedocles, pp. 94–138.

A useful and scholarly analysis of supposedly Pythagorean and Orphic elements in the *Katharmoi.*

1934 COVOTTI, Aurelio. *I presocratici, saggi*, in the series *Collezione di studi filosofici, serie storica, monografie* no. 3, pp. 5–79. A. Rondinella, Napoli. Empedocles, pp. 159–87.

This is largely taken up with translation of the fragments and so is less

informative, from the point of view of interpretation, than Covotti's earlier work in 1901.

*1934 DELATTE, Armand. 'Les conceptions de l'enthousiasme chez les philosophes présocratiques', *L'Antiquité Classique*, 3, pp. 5–79. Empedocles, pp. 21–7. This is also printed separately, under the same title, and with the same pagination, in the series *Collection d'Études Anciennes*, Société d'Édition 'Les Belles Lettres', Paris, 1934.

This explains the two kinds of *furor* attributed to Empedocles by Caelius Aurelianus, *Tardarum sive chronicarum passionum*, 1. 5. 145 (DK 31 A 98), as the result, the first of an unequal mixture of elements in the blood, and the second of the purification and release of the *daimon*.

1934–7 DIELS, see 1903.

1934–7 KRANZ, see 1903 DIELS.

1934 MONDOLFO, Rodolfo. *L'infinito nel pensiero dei Greci*, Felice le Mounier, Firenze. 'La sfera infinita in Parmenide, Empedocle e Zenone', pp. 276–84. [2nd edn] *L'infinito nel pensiero dell'antichità classica*, in the series *Il Pensiero Classico*, no. 5. 'La nuova Italia' editrice, Firenze, 1956. 'La sfera infinita in Parmenide, Empedocle e Zenone', pp. 363–72.

1934 SCHUHL, Pierre-Maxime. *Essai sur la formation de la pensée grecque, introduction historique à une étude de la philosophie platonicienne*, in the series *Bibliothèque de Philosophie Contemporaine*. 2nd edn, Presses Universitaires de France, Paris, 1949. Empedocles, pp. 296–305.

1934 STETTNER, Walter. *Die Seelenwanderung bei Griechen und Römern*, in the series *Tübinger Beiträge zur Alterumswissenschaft*, Heft 22. Empedocles, pp. 28–9.

1934 SULZBERGER, Max-Raymond. 'La *Physique* d'Empédocle', *Annuaire de l'Institut de Philologie et d'Histoire Orientales*, 2 = *Mélanges Bidez*, pp. 913–15.

Some brief remarks on the title of Empedocles' work and the order of fragments.

1935 ANONYMOUS. *I frammenti di Empedocle*. Published by the Stabilim-[ento] Industrie Editoriale Meridionali, Napoli. Pp. 22.

This is a plain text of the fragments which manages to achieve an eccentric numeration by omitting frr. 7, 37, 58, 92, 94, 97, 102 and 109a, by counting fr. 27a as 28, by giving a single number to frr. 77 and 78, and by giving two numbers to fr. 84.

1935 BRUNET, Pierre and MIELI, Aldo. *Histoire des sciences, antiquité*. Payot, Paris. Empedocles, pp. 135–9.

*1935 CAPELLE, Wilhelm. *Die Vorsokratiker, die Fragmente und Quellenberichte übersetzt und eingeleitet.* Kröners Taschenausgabe, Band 119, A. Kröner, Leipzig. Empedocles, pp. 181–249. This work has appeared since in a number of versions which are not described either as reprintings or as numbered editions. A recent appearance is as *Die Vorsokratiker, die Fragmente und Quellenberichte übersetzt und mit einer Vorbemerkung versehen von W.C.*, Akademie-Verlag, Berlin, 1958. References in this work are to the 1935 edition.

A translation of Diels' A and B texts, arranged under common headings, with short notes and a brief introduction.

Aristotle's 'in between time(s)', 8. The temporal division of the cycle, 55 n. 4. Two 'moving causes', 102. Fr. 59. 1, 325 n. 1.

*1935 CHERNISS, Harold Fredrik. *Aristotle's criticism of Presocratic philosophy.* The Johns Hopkins Press, Baltimore.

Rest and movement, 5–6. Cherniss' estimate of Aristotle as an historian of philosophy, with particular reference to Aristotle's supposed misunderstanding of the condition of the elements under total Strife, 17–19. Plutarch's description of the movement of the elements under total Strife, 33–4. Translation of οἱ ἄλλοι in Aristotle *De caelo* 301 a 12–14, 42 n. 1. Leucippus and eternal movement in Aristotle *Met.* 1071 b 26–33, 43. Two 'moving causes', 102 n. 4. Hölscher's refinement of an argument of Cherniss against the reliability of Aristotle's account of movement and rest in Empedocles, 170 n. 3. παραλείπει in Aristotle *De caelo* 301 a 15–16, 176. Misunderstands Aristotle's criticism of Empedocles' monsters, 208. Aristotle's supposed misunderstanding of ἀκίνητοι, 252–4, 260. False interpretation of Aristotle's criticism of the *dine* at *De caelo* 295 a 29–32, 262. Aristotle on like to like, 301–4, 312 n. 2. Aristotle's use of fr. 26. 1, 319. Bibliography, 363.

1935 HAUSSLEITER, Johannes. *Der Vegetarismus in der Antike*, in the series *Religionsgeschichtliche Versuche und Vorarbeiten*, Band 24. A. Töpelmann, Berlin. Empedocles, pp. 157–63.

*1935 KRANZ, Walther. Miszellen, 'Vorsokratisches 3, die Katharmoi und die Physika des Empedocles', *Hermes*, 70, pp. 111–19.

This argues, against Wilamowitz (1929), that the *Purifications* was an Orphic poem and written before the physical poem, although some fundamentals of belief are common to both works. Kranz's use of doublets to prove the priority of the religious poem is quite inconclusive.

*1935 LLOYD, A. H. 'The coin types of Selinus and the legend of Empedocles', *The Numismatic Chronicle*, series 5, vol. 15, pp. 73–93.

This seeks to place Diogenes' tale of Empedocles' diversion of rivers in Acragas, and to dissociate the legend from engravings on coins of Selinus. Cf. Fuchs (1957).

n.d. [1935] McClure, Matthew Thompson. *The early philosophers of Greece, with historical introduction . . . with translations by Richmond Lattimore.* D. Appleton, New York and London. Empedocles, pp. 157–86.

1935 Mieli, see 1935 Brunet and Mieli.

1935 Wilamowitz-Moellendorff, see 1929.

1936 Enriques, Federigo and Santillana, Giorgio de. *Les derniers 'physiologues' de la Grèce*, vol. 3 of *Histoire de la pensée scientifique*, and no. 386 in the series *Actualités scientifiques et industrielles*. Hermann, Paris. Empedocles and Anaxagoras, pp. 5–24.

1936 Santillana, see 1936 Enriques and Santillana.

1937 Becker, Otfrid. *Das Bild des Weges und verwandte Vorstellungen im frühgriechischen Denken*, in the series *Hermes Einzelschriften*, no. 4. Pp. 147–50 give special attention to Empedocles' theory of pores.

1937 Enriques, Federigo and Santillana, Giorgio de. *Compendio di storia del pensiero scientifico dall'antichità fino ai tempi moderni.* N. Zanichelli, Bologna. 'Le risposte al paradosso eleatico, Empedocle e Anassagora', chapter 5, pp. 62–77.

1937 Frenkian, Aram. M. *Études de philosophie présocratique 2, la philosophie comparée—Empédocle d'Agrigente—Parménide d'Élée.* Librairie philosophique J. Urin, Paris. Empedocles, pp. 46–61.

This describes chiefly the nature and behaviour of Empedocles' elements and his theories of perception in order to illustrate the unity of Empedocles' thought and the fusion therein of the material and the spiritual.

104 n. 1. 146 n. 1.

*1937 Loew, Emanuel. 'Empedokles, Anaxagoras und Democrit', *W.S.* 55, pp. 32–47. Empedocles, pp. 33–47. The *Fortsetzung* promised did not follow.

This attempts to present Empedocles' system, and particularly his theory of perception, as a compromise between Heraclitus and Parmenides.

1937 Santillana, see 1937 Enriques and Santillana.

1937 Taeger, Fritz. Miszellen, 'Isokrates und die Anfänge des hellenistischen Herrscherkultes', *Hermes*, 72. Empedocles, p. 356 n. 4.

90 n. 1.

1938 Bignone, see 1929.

*1938 Delcourt, Marie. *Stérilités mystérieuses et naissances maléfiques dans l'antiquité classique*, in the series *Bibliothèque de la Faculté de Philosophie et*

Lettres de l'Université de Liège, fasc. 83. Also published by Librairie E. Droz, Paris. 'Les fléaux en Sicile au temps d'Empédocle', chapter 5, pp. 83–90.

This is a discussion, with reference in part to fr. 11, of the accounts which describes Empedocles stilling the winds and draining the marshes.

1938 FRIEDLAENDER, Paul. 'Δὶς καὶ τρὶς τὸ καλόν', *T.A.P.A.* 69, pp. 375–80. Empedocles fr. 25, p. 377.

*1938 KRANZ, Walther. 'Gleichnis und Vergleich in der frühgriechischen Philosophie', *Hermes*, 73, pp. 99–102. Empedocles, pp. 100–9.

A moderately useful study of fourteen similes which can be found in Empedocles.

1938 KRANZ, see 1939.

*1938 THOMAS, Hans Werner. Ἐπέκεινα, *Untersuchungen über das Überlieferungsgut in den Jenseitsmythen Platons*. Dissertation of the Ludwig-Maximilians-Universität zu München. K. Triltsch, Würzburg.

Pp. 108–57 and especially pp. 115–19 trace the influence of Empedocles' *Katharmoi*, and in particular his treatment of *daimones*, on Plato's mythology. Although Thomas chooses one side or another on various disputed points of detail, the 'reconstruction' which is promised on p. 115 of Empedocles' religious theories does not in fact contain anything very new.

327 n. 1.

*1939 FOERSTER, Aurel. Miszellen, 'Empedocleum', *Hermes*, 74, pp. 102–4. On fr. 84.

1939 JOEHRENS, Otto. *Die Fragmente des Anaxagoras*. Printed dissertation of the Georg-August-Universität zu Göttingen. H. Pöppingaus, Bochum-Langendreer. 'Anaxagoras und Empedokles', pp. 82–4, and *Anhang*, 'Das zeitliche Verhältnis Empedokles–Anaxagoras', pp. 93–4.

1939 KRANZ, Walther. *Vorsokratische Denker, Auswahl aus dem Überlieferten, griechisch und deutsch*. Weidmann, Berlin. Empedocles, pp. 90–117. 2nd edn, described, p. 9, as 'im wesentlichen unveränderter Abdruck', but with a different pagination, Weidmann, Berlin und Frankfurt am Main, 1949. Empedocles, pp. 120–53.

1939 KRANZ, Walther. 'Kosmos als philosophischer Begriff frühgriechischer Zeit', *Philologus*, 93, n.F. 47 (1938–9). Empedocles, pp. 443–4.

*1939 REY, Abel. *La maturité de la pensée scientifique en Grèce*, vol. 3 of *La science dans l'antiquité*, in the series *L'évolution de l'humanité, synthèse collective, série complémentaire*. A. Michel, Paris. Empedocles, pp. 94–136. (Rey's work in this series forms a set of five volumes in all, published from 1930 to 1948.)

Temporal division of the cycle, 55 n. 4. Position of Love, 105 n. 5.

Condition of the fully separated elements, 146–7, and the influence of this view on Bollack, 163.

1940 NESTLE, Wilhelm. *Von Mythos zum Logos, die Selbstentfaltung des griechischen Denkens von Homer bis auf die Sophistik und Sokrates*. 2nd edn, A. Kröner, Stuttgart, 1942. Empedocles, pp. 113–20.

1940 SCHUMACHER, Joseph. *Antike Medizin, die naturphilosophischen Grundlagen der Medizin in der griechischen Antike*. 2nd edn, Walter de Gruyter, Berlin, 1963. Empedocles, pp. 105–25.

n.d. [1941] BIGNONE, Ettore. 'Note di critica del testo a Epicuro, a Seneca, alla *Vita di Empedocle* di Diogene Laerzio, a Polistrato Epicureo', *Bollettino del Comitato per la Preparazione dell'Edizione Nazionale dei Classici Greci e Latini*, described as published 'a liberi intervalli, in appendice ai *Rendiconti della Classe di Scienze Morali e Storiche della Reale Accademia d'Italia*', [vol. 2], pp. 103–9. Empedocles, p. 106.

This proposes ⟨ἀπ⟩οικιζομένου for Diog. Laert. 1. 67.

1941–7 BRÉHIER, see 1926.

1941 DEICHGRAEBER, Karl. 'Persönlichkeitsethos und philosophisches Forschertum der vorsokratischen Denker', *Jahrbuch der Akademie der Wissenschaften in Göttingen (Societät der Reichs-Akademie) für das Geschäftsjahr 1941/42*, pp. 56–84. Empedocles, pp. 73–6. Reprinted in *Der listensinnende Trug des Gottes, vier Themen des griechischen Denkens*, pp. 57–82 and 146–9. Vandenhoeck und Ruprecht, Göttingen, 1952. Empedocles, pp. 74–8.

1941 KRANZ, Walther. *Die griechische Philosophie, zugleich eine Einführung in die Philosophie überhaupt*. Sammlung Dieterich, Band 88. Dieterich, Leipzig. Empedocles, pp. 68–78. There are several later issues of this work.

1941 NILSSON, Nils Martin Persson. *Geschichte der griechischen Religion*, in *H.K.A.* Abteilung 5, Teil 2. 2 vols. Empedocles, vol. 1, pp. 702–3.

1941 SCHUMACHER, Joseph. 'Der Physis-Begriff bei Empedokles', *Sudhoffs Archiv für Geschichte der Medizin und der Naturwissenschaften*, 34, pp. 179–96.

1941 VOILQUIN, Jean. *Les penseurs grecs avant Socrate de Thalès de Milet à Prodicos, traduction, introduction, notices et notes par J.V.* Librairie Garnier frères, Paris. Empedocles, pp. 97–127.

A short introduction, which contains nothing new, followed by a translation of the fragments and of some of Diels' A texts.

*1942 GRIMAL, Edmonde. 'À propos d'un passage du *Ménon*, une définition "tragique" de la couleur', *R.E.G.* 55, pp. 1–13.

This argues against Diels (1884) that τραγικός describes not the style but the content of the definition.

1942 LONG, Herbert Strainge. *A study of the doctrine of metempsychosis in Greece, from Pythagoras to Plato.* Dissertation of the University of Princeton. Recommended for acceptance in 1942. Published at Princeton, New Jersey, 1948.

This is a clear and useful analysis of the fragments of the *Katharmoi* dealing with metempsychosis. Long stresses in particular the association of personal memory with metempsychosis, and Empedocles' indebtedness to Pythagoran ideas.

1942 NESTLE, see 1940.

*1942 SKEMP, Joseph Bright. *The theory of motion in Plato's later dialogues*, in the series *Cambridge Classical Studies*. Cambridge University Press, Cambridge. 'Antecedents of the κίνησις-doctrine of the *Timaeus* in the system of Empedocles', chapter 4, pp. 52–64.

22 n. 1. 102 n. 4.

*1942 VERDENIUS, Willem Jacob. *Parmenides, some comments on his poem.* J. B. Wolters, Groningen. Reprinted by A. M. Hakkert, Amsterdam, 1964. Empedocles, pp. 20–4, and 'Parmenides and Empedocles', Appendix F, pp. 69–72.

Pp. 20–4 offer a reinterpretation of frr. 105, 106, 108 and 110 whereby it is argued that Empedocles' theory of knowledge, like Parmenides', depends on the ἕξις of the knowing subject. The appendix contains a short but valuable discussion to the effect that Empedocles' reservations on the scope and nature of human knowledge, particularly in the opening verses of the physical poem, are intended, not as an expression of general scepticism, nor as an attack on Parmenides, but by way of contrast between the opinion of common mortals and Empedocles' own divine knowledge.

203 n. 4.

*1943 KRANZ, Walther. 'Lukrez und Empedokles', *Philologus*, 96, n.F. 50, pp. 68–107.

A useful collection of parallels in style and content. The latter should be supplemented by Jobst (1907) and by Bignone's notes. See also Bollack (1959).

1943 SNELL, Bruno. Miszellen, 'Hera als Erdgöttin', *Philologus*, 96, n.F. 50, pp. 159–60.

An attempt to solve the personifications in fr. 6.

1944 FARRINGTON, Benjamin. *Greek science, its meaning for us (Thales to Aristotle)*. Pelican Books, Harmondsworth, Middlesex, England. Empedocles, pp. 51–5.

1945 HEINIMANN, Felix. *Nomos und Physis, Herkunft und Bedeutung einer Antithese im griechischen Denken des 5. Jahrhunderts*, in the series *Schweize-*

rische Beiträge zur Altertumswissenschaft, Heft 1. F. Reinhardt, Basel. Discussion of fr. 8 on pp. 89–92 and of fr. 9 on pp. 83–5.

1945 VANDERCOILDEN, Gilbert. *Empédocle et sa conception de la nature.* Part 1, pp. 3–46, 'L'homme'. Part 2, pp. 47–109, 'Sa conception de la nature'. Unpublished thesis of the University of Louvain. Pp. 117.

A rewriting of the obvious sources without valuable comment.

105 n. 5. 147.

1945 YAKUVANIS, see 1906.

*1946 FREEMAN, Kathleen. *The pre-Socratic philosophers, a companion to Diels*, Fragmente der Vorsokratiker. 2nd edn, B. Blackwell, Oxford, 1949. The pagination is unchanged in the two editions. Empedocles, pp. 172–204.

Position of Love, 104 n. 1. ἐνέρτατον βένθος fr. 35. 3, 113 n. 1. Fr. 17. 19–20, 131 n. 5. General interpretation of the cosmic cycle, 159. Fiery fish, 190. Fr. 20, 218. Fr. 30, 1, 274. First separations of the elements, 289 n. 3. Fr. 59. 1, 325 n. 1.

1946 SNELL, Bruno. *Die Entdeckung des Geistes, Studien zur Entstehung des europäischen Denkens bei den Griechen.* 3rd edn, Claassen, Hamburg, 1955. Empedocles, pp. 284–98.

Empedocles' similes are compared with Homer's.

*1946 VERDENIUS, Willem Jacob and WASZINK, Jan Hendrik. *Aristotle On coming-to-be and passing-away, some comments*, in the series *Philosophia Antiqua*, vol. 1. E. J. Brill, Leiden. Empedocles, especially pp. 64–7.

Aristotle misunderstands and parodies φύσις in fr. 8. 'Dissociation' is the meaning of διάλλαξις fr. 8 and διαλλάξαντα fr. 35. On the latter cf. O'Brien (1965).

26 n. 1.

*1946 VON FRITZ, Kurt. 'νοῦς, νοεῖν, and their derivatives in Pre-socratic philosophy (excluding Anaxagoras), Part 2 the post-Parmenidean period', *C.P.* 41, pp. 12–34. Empedocles, pp. 13–21.

1947 ARMSTRONG, Arthur Hilary. *An introduction to ancient philosophy.* 4th edn, Methuen, London, 1965. Empedocles, pp. 15–16.

*1947 JAEGER, Werner Wilhelm. *The theology of the early Greek philosophers.* Gifford lectures, Clarendon Press, Oxford. Empedocles, pp. 128–54.

22. 136. 316.

*1947 VLASTOS, Gregory. 'Equality and justice in early Greek cosmologies', *C.P.* 42, pp. 156–78. Empedocles, pp. 158–61.

Empedocles' liking for equality, 70 n. 2, 83. Comment on ἀμοιβαῖος χρόνος fr. 30, 83. Fr. 17. 19, 130.

1948 FARINA, Antonio. *Amore e odio in Empedocle*, with a preface by E. Nobile. E. Farina, Caserta. Pp. 77.

This is largely taken up with a translation of the chapters on Empe-

docles in Diogenes Laertius and of some fragments, with ecstatic but uninteresting comment. Farina also considers the relation between the two poems, and concludes, p. 71, that Empedocles 'cerca di coprire con un velo di misticismo le aride teorie del poema fisico', a remark which is probably more indicative of Farina's own feelings than of Empedocles'.

In his introduction Nobile recommends two points to the reader's attention: Aristotle's alleged dependence on Empedocles for his theory of the material elements, which is dealt with on pp. 26–7, and the notion of 'progress' in Empedocles, which is dealt with on pp. 35–41, where the author concludes, 'lo sviluppo storico nella concezione empedoclea può essere paragonato ad una spirale, in cui i giri si somigliano ma non sono identici, bensì solo analoghi'. The first point seems to the present writer, as it stands, a fairly profitless simplification. No real evidence is offered for the second point, and Farina himself admits, in his *Conclusione*, p. 74, 'Anche se nessuna testimonianza antica parlasse in nostro favore, ugualmente non si potrebbe negare ai Greci un sentimento che è insito alla natura stessa dell'uomo, un sentimento di cui neppure l'essere umano più barbaro, più abietto, è privo': an assertion which, if accepted as evidence, would render the conclusion so general as to be worthless.

1948 FRAENKEL, see 1929 BIGNONE.

1948 FREEMAN, Kathleen. *Ancilla to the pre-Socratic philosophers, a complete translation of the fragments in Diels*, Fragmente der Vorsokratiker. B. Blackwell, Oxford. Empedocles, pp. 51–69.

1948 LONG, see 1942.

1948 NESTLE, see 1906.

*1948 VERDENIUS, W. J. 'Empedocles' doctrine of sight', in *Studia varia Carolo Guilielmo Vollgraff a discipulis oblata*. North-Holland Publishing Company, Amsterdam. Pp. 155–64.

*1948 VERDENIUS, W. J. 'Notes on the Presocratics', *Mnemosyne*, series 4, vol. 1. Section 8, 'The meaning of πίστις in Empedocles'; section 9, 'Empedocles frag. 26, 2', pp. 10–14.

314–15.

1948 WOLF-HARTMUT, see 1929 BIGNONE.

1948–62 RIVAUD, Albert. *Histoire de la philosophie*, in the series *Logos, Introduction aux Études Philosophiques*, 4 vols., Presses Universitaires de France, Paris. Vol. 1 [2nd] édition mise au jour par Gilbert Varet, 1960. Empedocles, vol. 1, pp. 63–72.

1948 ROBIN, see 1923.

1949 BATTISTINI, Yves. 'Empédocle', *Empédocle, revue littéraire mensuelle* (Paris), vol. 1, avril 1949, pp. 55–60.

This is a loose and rather highly coloured account of Empedocles' character and philosophy, notable chiefly for the assertion that in all Greek philosophy before Plotinus 'la pensée est elle-même un corps matériel', p. 57. This leads to the elements being described as 'doués de pensée, se connaissant eux-mêmes', p. 57, and to a description of the Sphere, p. 58, as 'pensée parfaite' and '*globe infini de sang*' (his italics).

1949 BATTISTINI, Yves. 'Les purifications', *Empédocle, revue littéraire mensuelle* (Paris), vol. 1, avril 1949, pp. 61–6.

A translation of the fragments attributed by Diels to the *Katharmoi*.

1949 FREEMAN, see 1946.

1949 HALBERTSMA, K. T. A. 'Over den wijsgeer Empedocles', *Hermeneus*, Jaargang 21 (1949–50), pp. 3–9, 22–6 and 62–8.

This contains a summary, competent enough but of no special value, of Empedocles' life, the chief features of his physical and religious theories, and his relation to other Presocratic thinkers.

*1949 KRANZ, Walther. *Empedokles, antike Gestalt und romantische Neuschöpfung*. Artemis-Verlag, Zürich. Pp. 392, including Hölderlin's drama.

The first half of this work includes a description of the physical system, with some significant points, and a new ordering and translation of the fragments.

On the condition of total Strife, 5–6. General interpretation of the cosmic cycle, 159 n. 4. Zoogony, 197. Empedocles' use of caesurae, 322 n. 5. Fr. 59. 1, 325 n. 1.

1949 KRANZ, see 1939.

*1949 LONG, Herbert S. 'The unity of Empedocles' thought', *A.J.P.* 70, pp. 142–58.

This argues for the unity of the two poems on the grounds that each man's *daimon* is a part of Love and Strife, which rule the life of the individual in the same way that they rule the history of the cosmos. 127. 329.

1949 MAZZANTINI, Carlo. *La filosofia nel filosofare umano, storia del pensiero antico*. Marietti, Torino e Roma. Empedocles, pp. 54–7.

1949 MUGLER, Ch. 'La philosophie physique et biologique de l'Épinomis (Contribution à l'histoire des sciences dans l'antiquité)', *R.E.G.* 62, pp. 31–79. Empedocles, pp. 50ff.

1949 SCHUHL, see 1934.

1949 VAN MELSEN, Andreas Gerardus Maria. *Van Atomos naar Atoom, de*

geschiedenis van het begrip Atoom. J. Meulenhoff, Amsterdam. Empedocles and Anaxagoras, pp. 17–20.

1950 LEISEGANG, Hans. 'Der Gottmensch als Archetypus', *Eranos-Jahrbuch*, 18. Empedocles, pp. 13–22.

*1950 LESKY, Erna. 'Die Zeugungs- und Vererbungslehren der Antike und ihr Nachwirken', *Akademie der Wissenschaften und der Literatur in Mainz, Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse* (1950), no. 19. Empedocles, especially pp. 1255–62, pp. 31–8. Lesky's bibliography includes some items not listed here.

*1950 REINHARDT, Karl. 'Empedokles, Orphiker und Physiker', *C.P.* 45, pp. 170–9. Reprinted in *Vermächtnis der Antike, gesammelte Essays zur Philosophie und Geschichtsschreibung*, ed. Carl Becker, published by Vandenhoeck und Ruprecht, Göttingen, 1960, pp. 101–13.

This is in effect a review of Kranz (1949). Reinhardt argues against Kranz on a number of points and especially on his making the *Purifications* the earlier poem.

*1950 SOLMSEN, Friedrich. 'Tissues and the soul, philosophical contributions to physiology', *P.R.* 59, pp. 435–68. 'Empedocles and Anaxagoras', pp. 436–45.

A moderately useful account of Empedocles' theories on the composition of bone, flesh, etc., but with nothing very new. Anaxagoras is assumed to be criticizing Empedocles, but cf. Kahn, *Anaximander* (1960).

70 n. 2. 201.

*1950–9 DE VOGEL, Cornelia Johanna. *Greek philosophy, a collection of texts selected and supplied with some notes and explanations.* 3 vols. E. J. Brill, Leiden. Empedocles, vol. 1, pp. 51–64.

22.

1951 BACCOU, Robert. *Histoire de la science grecque de Thalès à Socrate.* Aubier, éditions Montaigne, Paris. Empedocles, pp. 202–10.

P. 207 contains a very confused account of the cycle. Some of the more general interpretation is taken from Mieli (1913).

1951 HOMMEL, Hildebrecht. 'Cetera mitte, zu Archilochus, Horaz, Euripides und Empedokles', *Gymnasium* 58, pp. 218–27. Empedocles, pp. 222–3.

A rather flimsy argument on the influence of popularized Empedoclean notions of τύχη, φύσις and τέχνη in Euripides and elsewhere.

*1951 MUGLER, Ch. 'Sur quelques fragments d'Empédocle', *Revue de Philologie*, série 3, vol. 25, pp. 33–65.

Section 1, pp. 33–51, contains remarks on Empedocles' cyclic theory. These are repeated more fully in 1953. Section 2, pp. 51–8, contains an ingenious but false application of the cosmic cycle to the theory of

vision. Section 3, pp. 58–65, has some moderately useful remarks on fr. 22.

Fr. 20, 225. Fr. 22, 279, 306, 309, 311.

*1951 PELLATI, Francesco. 'La dottrina degli elementi nella fisica di Vitruvio', *Rinascimento*, 2, pp. 241–59.

This examines the influence on Vitruvius of Empedocles' theory of the elements.

193 n. 1.

1952 DEICHGRAEBER, see 1941.

1952 RUDBERG, Gunnar. 'Empedokles und Evolution', *Eranos*, 50, pp. 23–30.

Rudberg argues that the zoogony is not continuous and so not evolutionary in the modern sense. The discussion is kept on a general level, and there is assumed to be only one evolutionary sequence.

197. 209. 234.

1952 SKEMP, Joseph Bright. *Plato's Statesman, a translation of the Politicus of Plato, with introductory essays and footnotes*. Routledge and Kegan Paul, London. Empedocles, pp. 90–1.

A brief account of the cosmic cycle.

92 n. 2. 102 n. 4. 104 n. 1.

*1952 TRAGLIA, Antonio. *Studi sulla lingua di Empedocle*, described as in the series Μουσικαὶ διάλεκτοι *supplementi—serie* V–3. Adriatica Editrice, Bari. Pp. 199.

This is a development of Traglia's earlier work in 1931. In the present work Traglia attempts to trace Empedocles' affiliations with the language and sentiment of Homer, Hesiod, Aeschylus, Gorgias, Parmenides and the mysteries. Among a good deal of material of no great value there are a few significant points of detail that would best be at home in a comprehensive edition of Empedocles. Pp. 117–39 contain a useful summary of unusual words and formations in Empedocles. There are comparable studies by Thomas (1924), Gerke (1953), Munding (1954), Buhl (1956), and Groningen (1958).

μονίη fr. 27. 4, 24 n. 4. πολύκλαυτος fr. 62. 1, 233 n. 2. On air and aether, 289 n. 3. Empedocles' use of caesurae, 322 n. 5.

1952 TRAGLIA, Antonio. 'Breve rassegna di studi Empedoclei', *Atene e Roma* [ser. 4] 1, pp. 151–4.

*1952 VLASTOS, Gregory. 'Theology and philosophy in early Greek thought', *P.Q.* 2, pp. 97–123. Empedocles, pp. 119–21.

This argues briefly that the two poems are 'not only heterogeneous but contradictory at crucial points', p. 120.

329–30.

1953 CAPELLE, see 1922.

*1953 GERKE, Hans. *Sprache und Stil des Empedokles*. Unpublished dissertation. Göttingen. Pp. 115.

A useful study, largely of Homeric influence, which supplements the work of Thomas (1924). There are other comparable studies by Traglia (1952), Munding (1954), Buhl (1956), and Groningen (1958).

*1953 MCDIARMID, John B. 'Theophrastus on the Presocratic causes', *H.S.C.P.* 61, pp. 85–156. Empedocles, pp. 106–9.

37.

*1953 MUGLER, Charles. *Deux thèmes de la cosmologie grecque, devenir cyclique et pluralité des mondes*, in the series *Études et Commentaires*, 17. Empedocles, pp. 30–58.

A fanciful reconstruction of the cycle without evidence or argument. One or two of Mugler's wild guesses turn out to have some truth in them.

Speed, 46. The temporal division of the cycle, 55 n. 4. Position of Love, 104 n. 1. Cosmic breath, 124. The position of Strife during the Sphere, 128, and at the time of its total power, 128, 143–4. Volumes, 130. The position of the fully separated elements, 146 n. 1. Zoogony, 199. Fr. 20, 219 n. 1. Rain falls upwards, 265. The first separations of the elements, 289 n. 1.

1953 MUGLER, Ch. 'Les dimensions de l'univers Platonicien d'après *Timée* 32B', *R.E.G.* 66, pp. 56–88. Empedocles, pp. 63–4.

This discusses the influence on Plato of concentric spheres for the elements under total Strife. (Mugler here repeats very briefly a number of views expressed at greater length in *Devenir cyclique*, as cited in the previous entry. In these cases it has not been thought necessary to add references from the present article.)

130.

1953 SARTON, George. *A history of science, ancient science through the golden age of Greece*. Oxford University Press. Empedocles, pp. 246–50.

*1953 ZAFIROPULO, Jean. *Empédocle d'Agrigente*. Part of the text has the sub-title *Texte et traduction des fragments des poèmes d'Empédocle*. In the series *Collection d'Études Anciennes*. Société d'Édition 'Les Belles Lettres', Paris. Pp. 305. See also 1954 ZAFIROPULO.

Position of Love, 104 n. 2. Fr. 35. 3–5, 106. Fr. 17. 19–20, 131 n. 5. Zoogony, 198 n. 3. First separations of the elements, 289 n. 3. Suggested restoration of fr. 17. 8a, 323. Fr. 59. 1, 325 n. 1.

1954 ALTHEIM, Franz and STIEHL, Ruth. *Porphyrios und Empedokles*. M. Niemeyer, Tübingen. Pp. 73.

This argues that Porphyry's φιλόσοφος ἱστορία is preserved in

Schahrastani, cf. DK 1. 358. 16 *app. crit.*, and that the section on Empedocles preserves authentic doctrine. The section is in fact an extreme neo-Platonic interpretation of the theory of metempsychosis and of the relation of the world to god from which little if anything can safely be added to our knowledge of Empedocles.

*1954 MUNDING, Heinz. 'Zur Beweisführung des Empedokles', *Hermes*, 82, pp. 129–45.

Some useful comments on the structure principally of frr. 17 and 35. There is some discussion of Empedocles' theories, but in fact nothing new emerges on the content of Empedocles' thought. For other broader studies of Empedocles' style and vocabulary see Thomas (1924), Traglia (1952), Gerke (1953), Buhl (1956), and Groningen (1958).

μονίη fr. 27. 4, 22 n. 3. Position of Love, 105 n. 5. ἐνέρτατον βένθος fr. 35. 3, 114. ἐν τῇι δή fr. 35. 4, 119. How the poem was read, in general, 141 n. 1. Function of fr. 26 in its context, 211. Fr. 20, 219 n. 1. How the poem was read, in relation to frr. 20 and 26, 225 n. 1. Aristotle's supposed misunderstanding of ἀκίνητοι, 252 n. 2. Adopts φίλ(α) fr. 22. 3, 307 n. 2. Fr. 26. 1, 316. Fr. 26. 7, 320, 322.

1954 STIEHL, see 1954 ALTHEIM and STIEHL.

1954 ZAFIROPULO, Jean. Ἐμπεδοκλέους Καθαρμοί, *texte établi et annoté par J.Z., traduction, le poème des purifications*. A. Tallon, Paris. The pages are not numbered.

This is a *de luxe* reprinting of the relevant part of Zafiropulo's 1953 edition.

1955 BARTOLINI NICCOLINI, Olga. 'De T. Lucretio Caro', *Latinitas*, 3, pp. 280–6.

This consists of a few unoriginal comparisons with Empedocles.

1955 BATTISTINI, Yves. *Trois contemporains, Héraclite, Parménide, Empédocle, traduction nouvelle et intégrale avec notices*, with the sub-title *Les Essais* 78. Gallimard, [Paris]. Empedocles, pp. 115–91.

This is a translation of the relevant sections of DK with a short introduction which contains nothing new.

289 n. 1.

1955 HOLWERDA, Douwe. *Commentatio de vocis quae est* φύσις *vi atque usu praesertim in Graecitate Aristotele anteriore*. Apud J. B. Walters, Groningae. Empedocles, pp. 37 and 111.

P. 37 has an unnecessary emendation of fr. 110. 5. P. 111 argues that φύσις in fr. 8 means genesis.

1955 REYMOND, see 1924.

1955 SNELL, see 1946.

1955 WESTMAN, Rolf. *Plutarch gegen Kolotes, seine Schrift 'adversus*

Colotem' als philosophiegeschichtliche Quelle, in the series *Acta Philosophica Fennica*, fasc. 7. Helsingfors. Empedocles, especially pp. 55–60, 243–51 and 305.

*1956 BUHL, Maria Sophia. *Untersuchungen zu Sprache und Stil des Empedokles*. Dissertation of the Ruprecht-Karl-Universität in Heidelberg. Pp. 160.

In a short space this study accumulates a good deal of detailed information and some useful comment on several features of Empedocles' vocabulary and of his style of writing and thinking. There are comparable studies by Thomas (1924), Traglia (1952), Gerke (1953), Munding (1954) and Groningen (1958).

On χθονός in fr. 62. 4, 204. Defective interpretation of fr. 20, 220 n. 2. Accepts ἀδρομελέστεροι in fr. 67, 285 n. 2. On Empedocles' preference for forms with -η-, 291 n. 3.

n.d. [1956] DES PLACES, Édouard. *Les religions de la Grèce antique*, vol. 3 of *Histoire des religions*, 5 vols., edd. Maurice Brillant and René Aigrain. Bloud et Gay, [Tournai]. Empedocles, item 3, pp. 192–5.

1956 Ђурић, M. H. Ђурић, M. N. 'Этичка схватања у Эмпедокла и Анаксагора', in Serbo-Croat, with a German abstract, 'Empedokles und Anaxagoras als Ethiker', *Жива Антика=Živa Antika=Antiquité vivante*, 6, pp. 93–118. Empedocles, pp. 93–106.

This offers a fairly standard account of Empedocles' physical and religious ideas.

1956 MONDOLFO, see 1934.

1956 SAMBURSKY, Samuel. *The physical world of the Greeks*. Routledge and Kegan Paul, London. Empedocles, pp. 16–22.

*1956 SCHWABL, Hans. 'Empedokles fr. B 110', *W.S.* 69, pp. 49–56.

1956 TOURNEY, Garfield. 'Empedocles and Freud, Heraclitus and Jung', *Bulletin of the History of Medicine*, 30, pp. 109–23.

This does not help towards the understanding of Empedocles.

*1956 VAN GRONINGEN, B. A. 'Trois notes sur Empédocle', *Mnemosyne*, series 4, vol. 9, pp. 221–4.

1. γένος for μένος in fr. 27. 2. 2. Μελισσώ for Μεγιστώ in fr. 123. 2. 3. ἀπορεῦνται fr. 137 means 'sans savoir ce qu'ils font'.

1956 VAN GRONINGEN, B. A. 'Le fragment 111 d'Empédocle', *Classica et Mediaevalia*, 17, pp. 47–61.

This argues that the verses were composed for a comic representation of Empedocles on the stage.

1956 VERTUE, H. St H. 'Venus and Lucretius', *Greece and Rome*, ser. 2, vol. 3, pp. 140–52.

Some rather flowery remarks, built around the association of Empedocles' Love and Lucretius' Venus.

1957 BOLLACK, Jean. 'Die Metaphysik des Empedokles als Entfaltung des Seins', *Philologus*, 101, pp. 30–54.
This is repeated more fully in 1965.
159–60. 167.

1957 FRANÇOIS, Gilbert. *Le polythéisme et l'emploi au singulier des mots* θεός, δαίμων *dans la littérature grecque d'Homère à Platon*, in the series *Bibliothèque de la Faculté de Philosophie et Lettres de l'Université de Liège*, fasc. 147. Also published by Société d'Éditions 'Les Belles Lettres', Paris. Empedocles, pp. 176–7.

*1957 FUCHS, Werner. 'Eine Bronzestatuette des strengen Stiles im Lateran', with pp. 230–1, 'Anhang: die Verseuchung des Wassers in Selinus und die Tat des Empedokles', *Mitteilungen des Deutschen Archäologischen Instituts, Römische Abteilung*, 64.
This argues against Lloyd (1935).

1957 FURLEY, D. J. 'Empedocles and the clepsydra', *J.H.S.* 77, pp. 31–4.
This makes Empedocles' theory the same as Plato's. Furley is answered by Booth (1960).

1957 GUTHRIE, William Keith Chambers. *In the beginning, some Greek views on the origins of life and the early state of man*. Methuen, London. Empedocles, pp. 42–5.
This gives an account of Empedocles' zoogony.
198 n. 3.

*1957 KIRK, Geoffrey Stephen and RAVEN, John Earle. *The Presocratic philosophers, a critical history with a selection of texts*. Cambridge University Press, Cambridge. Empedocles, pp. 320–61.
Misuse of the term 'Sphere', 4 n. 2. The beginning of rotation, a difficulty, 21 n. 4. Kirk on 'eternal' movement, 40–1. Equivalence of 30,000 seasons in the physical system, 89. 'Four periods', 92 n. 2. Two 'moving causes', 102 n. 4. The position of Love, 104 n. 1. ἐνέρτατον βένθος fr. 35. 3, 113 n. 1. Translation of ἐν τῇι δή fr. 35. 5, 118 n. 3. The condition of the elements under total Strife, 146 n. 1. Frr. 26a and 27, 149. Zoogony, 198–9. Fr. 30. 1, 274. First separations of the elements, 289 n. 1. On air and aether, 292. The beginning of rotation, a suggested answer to the difficulty, 297. Translation of δαίμων in fr. 59. 1, 325 n. 2. Reproduces Cornford's explanation of the *daimon*, 329.

*1957 KRANZ, Walther. 'Zwei kosmologische Fragen', *Rh.M.* n.F. 100, pp. 114–29. Empedocles, pp. 122–4.
This discusses Empedocles' explanation of night and day.
46.

1957 RAVEN, see 1957 KIRK and RAVEN.

*1957 SCHWABL, Hans. 'Zur "Theogonie" bei Parmenides und Empedokles', *W.S.* 70, pp. 278–89.

This argues that the pairs of gods of the *Purifications* are a traditional element derived in part from Hesiod and to be found also in Parmenides, and that their presence in the *Purifications* does not therefore indicate a conscious departure from the doctrine of the physical poem.

*1957 TIMPANARO CARDINI, Maria. 'Respirazione e clessidra (Empedocle fr. 100)', *La Parola del Passato, rassegna critica di filosofia e storia della filosofia*, 12, pp. 250–70.

This argues that ῥινῶν in line 4 means 'nostrils'.

1958 BOCK, Martin. 'Aischylos und Akragas', *Gymnasium*, 65, pp. 402–50. Empedocles, pp. 412–18.

This offers some remarks on the place of Empedocles and Aeschylus in the political and social life of Acragas.

1958 BOLLACK, Jean. 'Styx et serments', *R.E.G.* 71, pp. 1–35. Empedocles, pp. 1 and 33–5.

This argues that ὅρκοις in fr. 115 and ὅρκος in fr. 30 have the meaning not of 'oath', but of 'bonds' and 'barrier'.

1958 BOUSSOULAS, N.-I. 'Essai sur la structure du mélange dans la pensée présocratique, Empédocle', *Revue de Métaphysique et de Morale* [63], pp. 135–48.

Boussoulas distinguishes three kinds of mixture, 'mélange-confusion' which is the Sphere, 'mélange-juxtaposition' which is apparently total Strife, and 'mélange-intermédiaire' apparently the worlds of increasing Love or Strife. The distinction as described by Boussoulas is not supported by the evidence and in part conflicts with it.

113 n. 1. 147. 325 n. 3. 327.

1958 CAPELLE, see 1935.

1958 LIEBERG, Godo. 'Il ruolo del piacere nella filosofia di Empedocle', *Sophia*, 26, pp. 221–5.

This seeks to associate Love's mixture of elements in the Sphere with the mixture which according to Theophrastus *De sens.* 9 was required to produce pleasure.

274 n. 1.

1958 SOLMSEN, Friedrich. 'Aristotle and Presocratic cosmogony', *H.S.C.P.* 63, pp. 265–82.

22 n. 2. 42 n. 1. 56. 252 n. 2.

1958 TIMPANARO CARDINI, Maria. 'La clessidra di Empedocle e l'esperienza di Torricelli', in *Convegno di Studi Torricelliani in occasione del 350° anniversario della nascita di Evangelista Torricelli*, pp. 151–6. Fratelli Lega,

Faenza. (The conference was held in 1958; the papers were published in 1959.)

This attempts to draw out some of the theoretical implications of fr. 100 and argues for certain similarities with an experiment by Torricelli.

*1958 VAN GRONINGEN, Bernard Abraham. *La composition littéraire archaïque grecque, procédés et réalisations*, in *Verhandelingen der Koninklijke Nederlandse Akademie van Wetenschappen, Afdeling Letterkunde*, n.r. deel 65, no. 2. Empedocles, pp. 201–22.

This analyses the manner in which Empedocles presents his teaching. It is a rather fuller work than that of Munding (1954) and has some illuminating points. Other comparable studies are by Thomas (1924), Traglia (1952), Gerke (1953), and Buhl (1956).

109–10. 211.

1959 BOLLACK, Jean. 'Lukrez und Empedokles', *Die Neue Rundschau*, 70, pp. 656–86.

This consists of a large number of loose, and sometimes questionable, comparisons with Empedocles.

*1959 BOLLACK, P. 'Le proème du περὶ φύσεως d'Empédocle, essai de reconstitution', *R.E.G.* 72, pp. xv–xvi.

This arranges frr. 2 (emended), 111 and 3 as part of the exordium.

*1959 DETIENNE, Marcel. 'La "démonologie" d'Empédocle', *R.E.G.* 72, pp. 1–17.

This attempts to delineate the various connotations of *daimon* in Empedocles.

328–9. 333–4.

1959 NÉLOD, Gilles. *Empédocle d'Agrigente*. Office de Publicité, S. A. Éditeurs, Bruxelles. Pp. 106.

A popular work of no special value.

105 n. 5.

1959 OWENS, Joseph. *A history of ancient western philosophy*. Appleton-Century-Crofts, New York. Empedocles, pp. 103–11.

*1959 PFLIGERSDORFFER, Georg. *Studien zu Poseidonios*, in *Sitzungsberichte der Österreichischen Akademie der Wissenschaften, Philosophisch-historische Klasse*, Band 232, Abhandlung 5. Empedocles, pp. 100–31.

This traces Empedoclean influence *via* Posidonius in Diodorus 1. 7. False use of Aet. 1. 7. 28 to prove the Sphere's immobility, 38 n. 1. Love as cause of rest, 102. Position of Love, 105 n. 5. Inadequate answer to Munding on fr. 35. 3–4, 114. Frr. 26a and 27, 149, 152–3. General interpretation of the cosmic cycle, 159–60, which influences his interpretation of fiery fish, 193. The general provenance of Diodorus' account, 232 n. 2. First separations of the elements, 289 n. 1.

1959 SIEGEL, Rudolph E. 'Theories of vision and color perception of Empedocles and Democritus; some similarities to the modern approach', *Bulletin of the History of Medicine*, 33, pp. 145–59.

The somewhat flimsy scholarship of this paper fails to support the thesis, p. 151, that 'from our point of view, the ideas of Empedocles seem to reveal a deep insight or even anticipation of later developments'.

*1959 TAILLARDAT. 'Le sens d'"amorgos" (Empédocle, fr. 84 Diels[7]) et les lanternes dans l'antiquité', *R.E.G.* 72, pp. xi–xii.

This argues that ἀμοργός means linen from the island of Amorgos.

1959 TIMPANARO CARDINI, see 1958.

*1960 BOLLACK, Jean. Miszellen, 'Lukrez 1, 1114–17 und Empedokles fr. 110', *Philologus*, 104, pp. 295–8.

This questions the association of the two passages by Bignone and Kranz, in furtherance of P. Bollack's reconstruction of the exordium of the poem, see P. Bollack (1959).

*1960 BOOTH, N. B. 'Empedocles' account of breathing', *J.H.S.* 80, pp. 10–15.

This takes ῥινῶν as nostrils in line 4, but makes blood equivalent to air.

1960 BOUSSOULAS, Nicolas. 'La structure du mélange dans la pensée antique', *Sophia*, 28, pp. 380–96. Empedocles, pp. 381–2.

This repeats very briefly the theory of three types of mixture, see Boussoulas (1958). Descriptions of the Sphere are strangely applied to the 'mélange-intermédiaire' which exists in the worlds of increasing Love or Strife. The whole account is most confused.

55 n. 4.

*n.d. [1960] CALOGERO, Guido. 'L'eleatismo di Empedocle', in *Studi in onore di Luigi Castiglioni*, pp. 127–67. 2 vols., with consecutive pagination. G. C. Sansoni, Firenze.

This argues that in his 'ontological' fragments Empedocles follows Melissus in reducing Parmenides' being to the temporal and the visual. An attractive thesis: but the dependence on Melissus is not altogether convincing, for any two reactions to Parmenides are likely to have features in common. There are, incidental to the main thesis, some acute comments on the language of the relevant fragments.

22.

*1960 CATAUDELLA, Quintino. 'Empedoclea', *R.F.I.C.* n.s. 38, pp. 124–32.

Emendations of some fragments and secondary passages.

194 n. 5. 321.

*1960 KAHN, Charles H. 'Religion and natural philosophy in Empedocles' doctrine of the soul', with a note, 'Empedocles among the Shamans', *A.G.P.* 42, pp. 3–35.

This argues that there is a loose unity between the two poems founded

on the identity of the *daimon* with Love. In his note Kahn argues that Empedocles was not a Shaman, though Pythagoras may have been.
329. 332.

*1960 KAHN, Charles H. *Anaximander and the origins of Greek cosmology.* Columbia University Press, New York. Empedocles, pp. 23–4 and 163–5.
On pp. 23–4 Kahn argues that Aristotle misunderstands φύσις in fr. 8, ῥίς in fr. 100, and ἀκίνητοι in fr. 26. On pp. 163–5 Kahn argues that Anaxagoras wrote before Empedocles.
252 n. 2. 255.

1960 MINZ, Hubert. *Anfänge des Naturrechts bei Empedokles, und ein Vergleich mit dem Naturrecht des Sophisten Antiphons.* Dissertation of the University of Köln. Druck: G. Menden, Bonn. Pp. 92.
This includes quite a lengthy analysis of frr. 9 and 135.

1960 REICHE, Harald Anton Thrap. *Empedocles' mixture, Eudoxan astronomy and Aristotle's connate pneuma, with an appendix, 'General because first' a Presocratic motif in Aristotle's theology.* A. M. Hakkert, Amsterdam. Pp. 148.
This argues that Aristotle's connate pneuma is derived *via* Philistion from Empedocles' *daimon.* The number of loose assumptions and the extravagant and confusing terminology make this a difficult and unrewarding work.
328. 329.

1960 REINHARDT, see 1950.

1960 RIVAUD, see 1948.

*1960 SOLMSEN, Friedrich Rudolph Heinrich. *Aristotle's system of the physical world, a comparison with his predecessors,* in the series *Cornell Studies in Classical Philology,* vol. 33. Cornell University Press, Ithaca, New York.
μονίη fr. 27. 4, 22 n. 2. Thinks Eudemus was contradicting Aristotle, 30 n. 4. General interpretation of the cosmic cycle, 160. Aristotle's supposed misunderstanding of ἀκίνητοι, 252 n. 2.

1960 STERN, S. M. Article on Empedocles in *The Encyclopedia of Islam,* new edition, *s.v.* Anbaduḳlis, vol. 1, pp. 483–4.

1960 TIMPANARO CARDINI, Maria. 'La zoogonia di Empedocle e la critica Aristotelica', *Physis,* 2, pp. 5–13.
This argues on inadequate grounds that ἀκριτόχειρος in fr. 60 means not 'con innumerevoli mani' but 'con mani non articolate in dita distinte', p. 8. There follows a fairly obvious paraphrase of Aristotle *Phys.* 198b10–32 (cf. pp. 216–17 above) and some concluding remarks on the supposed relevance of Empedocles' zoogony to more modern theories.

1960 ΖΟΥΜΠΟΣ, A. N. 'Η ἔννοια τῆς συμμετρίας ἐν τῇ διδασκαλίαι τοῦ 'Επεδοκλέους. ἐν 'Αθήναις. Pp. 6.

I regret that I have been unable to obtain a copy of this item. Cf. Ζοῦμπος (1962).

*1961 BAUER, Johannes Bapt. '"μονίη" Empedokles B 27, 4 und 28, 3', *Hermes*, 89, pp. 367–9.

This explains μονίηι περιηγέι γαίων as 'des rings in sich geschlossenen Einsseins sich freuend'.

22–3.

*1961 BLUCK, R. S. 'On τραγική: Plato, *Meno* 76E', *Mnemosyne*, ser. 4, vol. 14, pp. 289–95.

This takes some account of Empedocles' theory of colour.

*1961 JOUANNA, J. 'Présence d'Empédocle dans la collection Hippocratique', *B.A.G.B.* série 4, numéro 4, décembre, *Supplément*, *Lettres d'Humanité*, tome 20, pp. 452–63.

A detailed and fairly useful synopsis. Cf. Fredrich (1899).

1961 REGENBOGEN, see 1931.

1961 SANTILLANA, Giorgio de. *The origins of scientific thought, from Anaximander to Proclus, 600 B.C. to 300 A.D.*, in the series *The History of Scientific Thought*, vol. 1. Weidenfeld and Nicolson, London. Empedocles, pp. 108–28.

There are here one or two new ideas that are impossible or highly improbable.

'Four periods', 92 n. 2. The position of Love, 104 n. 1. The condition of the fully separated elements, 146 n. 1.

*1962 ARUNDEL, M. R. 'Empedocles, fr. 35. 12–15', *C.R.* n.s. 12, pp. 109–11.

Cf. O'Brien (1965).

26 n. 1.

1962 BOEKER, Robert. 'Wetterzeichen, sect. 10 'Ανθήλιος', *R.E.* Supplementband 9, coll. 1682–4.

This makes an attempt to explain Empedocles' 'two suns'.

1962 BURKERT, Walter Friedrich Max. *Weisheit und Wissenschaft, Studien zu Pythagoras, Philolaos und Platon*, in the series *Erlanger Beiträge zur Sprach- und Kunstwissenschaft*, Band 10.

Empedocles, fr. 129 on pp. 113–14, *et alibi.*

1962 GUTHRIE, William Keith Chambers. *A history of Greek philosophy.* Cambridge University Press, Cambridge.

References in the present work are to vol. 1. The second volume (1965), which contains a chapter on Empedocles, had not appeared before

the present work was completed, and makes some mention of the present work.

'Eternal' movement, 41. Pythagorean opposites, 44 n. 2. Pythagoreans and χρόνος, 74 n. 2. Pythagorean central fire, 121 n. 1. Anatolius' μοναδικὴ φύσις, 121. Pythagorean repeated worlds, 126 n. 5. On Heraclitus' ἦθος ἀνθρώπωι δαίμων, 332 n. 3.

1962 KERSCHENSTEINER, Jula. *Kosmos, quellenkritische Untersuchungen zu den Vorsokratikern*, in the series *Zetemata*, vol. 30. C. H. Beck, München. Empedocles, pp. 124–40.

1962 WEST, M. L. 'Empedocles on papyrus', *C.R.* n.s. 12, p. 120.
Recognition of fr. 115. 6 on a papyrus fragment.

1962 ΖΟΥΜΠΟΣ, A. N. 'Εἷς Ἐμπεδοκλέα', Ἀθηνᾶ 66, pp. 298–300.
A few fairly obvious remarks on symmetry and equality.

*1963 ARUNDEL, Maureen Rosemary. *An interpretation of Empedocles.* Unpublished dissertation of the University of Oxford. Pp. 249.
This contains a text and reordering of the fragments, followed by several chapters of criticism and reconstruction, including one, chapter 4, pp. 124–91, which discusses Empedocles' major physical theories and the structure of the cycle. Miss Arundel's thesis had not been consulted before the present work was completed.

*1963 BOLLACK, Mme Mayotte. 'La Chaîne aimantine, Lucrèce et ses modèles grecs', *R.E.L.* 41, pp. 165–85.
This argues that Empedocles' theory of magnets is used in Lucretius' account of sexual attraction.

1963 CASINI, Paolo. 'Zoogonia e "trasformismo" nella fisica Epicurea', *G.C.F.I.* ser. 3, vol. 17, anno 42, pp. 178–207. Empedocles, especially pp. 186–97.
This analyses the influence of Empeocles and the Epicurean tradition on modern theories of evolution.

1963 LONGRIGG, James. 'Philosophy and medicine, some early interactions', *H.S.C.P.* 67, pp. 147–55.
Pp. 156–8 discuss Empedocles' presence in περὶ ἀρχαίης ἰητρικῆς. Appendix B, pp. 169–70, has some discussion of the supposed 'serious inconsistencies' between the denial of void and Empedocles' theory of pores.

1963 MARTANO, Giuseppe. 'Bagliori della chimica moderna in Empedocle d'Agrigento', Κώλακος, 9, pp. 3–18.
This sets out to justify Gomperz's remarks on Empedocles as the founder of modern chemistry (1896), p. 188. The argument scans a large number of fragments without illuminating analysis. The general comments are more ecstatic than informative.

1963 ΜΗΤΡΟΠΟΥΛΟΣ, Κ. ' Ἰατρικὰ προσωκρατικῶν φιλοσόφων', Πλάτων, 15, pp. 196–218. Empedocles, pp. 196–218.

*1963 MINAR Jr., Edwin L. 'Cosmic periods in the philosophy of Empedocles', *Phronesis*, 8, pp. 127–45.

This is an aporematic discussion leading to conclusions that are somewhat ill-defined. Minar appears to question the usual notion of the Sphere as a separate entity existing at one stage of the cosmic cycle. Rest and movement, 5–6. The temporal division of the cycle, 56. Fr. 27a, 96 n. 4. Position of Love, 104 n. 1. Frr. 26a and 27, 149 n. 10. General interpretation of the cycle, 160ff. Zoogony, 199. The composition of the οὐλοφυῆ, 204 n. 2. γυῖα θεοῖο fr. 31, 275. Fr. 26. 7, 320–1.

1963 ROBIN, see 1923.

1963 RUCH, M. 'Horace et les fondements de la "iunctura" dans l'ordre de la création poétique (*A.P.*, 46–72)', *R.E.L.* 41, pp. 246–69. Empedocles, pp. 260–2.

This is a rather implausible attempt to specify the association of the *concordia discors* of Horace *Epist.* 1. 12. 19 with Empedocles' Love and Strife. Ruch seems to misunderstand the relation of Love and Strife in Empedocles' world, and his remarks apply more to Heraclitus.

1963 SCHUMACHER, see 1940.

1963 SOLMSEN, Friedrich. 'Nature as craftsman in Greek thought', *J.H.I.* 24, pp. 473–96. Empedocles, pp. 476–9.

This seeks to analyse the significance of similes describing the activity of Love.

1963 SOLMSEN, Friedrich. A review of Reiche (1960), *A.J.P.* 84, pp. 91–4. 328–9.

1963 TRAGLIA, Antonio. 'Reminiscenze empedoclee nei "Fenomeni" di Arato', in *Miscellanea di Studi Alessandrini in memoria di Augusto Rostagni*, pp. 382–93. Bottega d'Erasmo, Torino.

Most of this material is highly dubious.

131 n. 5.

1963 ΖΟΥΜΠΟΣ, Α. Ν. 'Ποικίλα φιλολογικὰ καὶ φιλοσοφικά', Πλάτων 15. Item 2 'Εἰς Ἐμπεδοκλέα', pp. 142–3.

An emendation of fr. 147, part of which will not even scan.

1964 BRUMBAUGH, Robert Sherrick. *The philosophers of Greece.* George Allen and Unwin, London. Empedocles, pp. 68–77.

*1964 FERGUSON, John. 'Two notes on the Preplatonics. 1, Empedocles DK 31A30', *Phronesis*, 9, pp. 98–101.

*1964 LONGRIGG, James. 'Galen on Empedocles (fragment 67)', *Philologus*, 108, pp. 297–300.

*1964 PRÉAUX, Jean-G. 'Un fragment retrouvé du *De rerum natura* de Varron', in *Collection Latomus*, 70 = *Hommages à Jean Bayet*, pp. 587–98.
This seeks to establish the use of Empedocles fr. 109 as part of a fragment recorded by Hugh of St Victor as from a *Periphyseon* by Varro. The argument is itself perhaps inconclusive; but it sheds some useful light on the place of Empedocles in the Roman world.

1964 VERDENIUS, see 1942.

1965 ARMSTRONG, see 1947.

1965 BACIGALUPO, Maria Vittoria. 'Teriomorfismo e trasmigrazione', *Filosofia, rivista trimestrale* (Torino), anno 16, fasc. 2 (aprile, 1965), pp. 267–90. Empedocles, pp. 278–80.
A wide-ranging, but quite informative, discussion of beliefs in transmigration involving men and beasts.

*1965 BOLLACK, Jean. *Empédocle i, introduction à l'ancienne physique*. Les Éditions de Minuit, Paris. Pp. 411.
160–3. 167. 173. 173 n. 5. 176. 177–8.

1965 BOLLACK, J. 'Empédocle ou l'ancienne physique', *L'Information Littéraire*, 17, pp. 203–7.
A summary of some parts of Bollack's larger work.

1965 CLEVE (also LOEWY-CLEVE), Felix Merori. *The giants of Pre-Sophistic Greek philosophy, an attempt to reconstruct their thoughts*. 2 vols., with continuous pagination. M. Nijhoff, The Hague. Empedocles, vol. 2, pp. 329–96.
This book was not available before the present work had been completed: no revision of the present conclusions seemed to be necessitated by its appearance.

1965 GUTHRIE, see 1962.

*1965 HOELSCHER, Uvo. 'Weltzeiten und Lebenszyklus, eine Nachprüfung der Empedokles-Doxographie', *Hermes*, 93, pp. 7–33.
160ff., especially 179–81.

1965 HOELSCHER, Uvo. *Empedokles und Hölderlin*. Insel-Verlag, Frankfurt am Main. Pp. 65.
160 n. 3.

1965 JANNACCONE, Silvia. 'Una reminiscenza dei Καθαρμοί empedoclei nel carme 64 di Catullo', *Giornale Italiana di Filologia*, 18, pp. 127–30.
This compares *exspuit* in *v.* 155 with ἔπτυσε, fr. 115. 10.

1965 LOEWY-CLEVE, see 1965 CLEVE.

*1965 LONGRIGG, James. 'Κρυσταλλοειδῶς', *C.Q.* n.s. 15, pp. 249–51.
This includes a discussion of the formation of Empedocles' firmament.

*1965 LONGRIGG, J. Notes, 'Empedocles's fiery fish', *Journal of the Warburg and Courtauld Institutes*, 28, pp. 314–15.

This argues that Empedocles' fiery fish live in water to cool their 'innate heat' and that this is also the purpose for Empedocles of breathing. The contrast with birds is not exploited.

190 n. 4.

*1965 MUELLER, Carl Werner. *Gleiches zu Gleichem, ein Prinzip frühgriechischen Denkens*, in *Klassisch-Philologische Studien*, Heft 31. Otto Harrassowitz, Wiesbaden. Empedocles, pp. 26–64.

This detailed study of like to like in Empedocles, including a discussion of fr. 22, was not available before the completion of the present work. Cf. note 8, pp. 301–13.

*1965 O'BRIEN, Denis. 'Empedocles fr. 35. 14–15', *C.R.* n.s. 15, pp. 1–4.

26 n. 1. 117. 267 n. 3.

*1965 SOLMSEN, F. 'Love and Strife in Empedocles' cosmology', *Phronesis*, 10, pp. 109–48.

160ff., especially 181–9.

1965 THIVEL, Antoine. 'La doctrine des περισσώματα et ses parallèles Hippocratiques', *Revue de Philologie, de Littérature et d'Histoire Anciennes*, 39, pp. 266–82.

This includes an account of Empedocles' influence on the broadening of the relevant medical theories.

1965 ZUNTZ, G. 'De Empedoclis librorum numero coniectura', *Mnemosyne*, ser. 4, vol. 18, p. 365.

This proposes three books of 3,000 verses for the physical poem, and two books of 2,000 verses for the Καθαρμοί, on the ground that fr. 131 marks 'τῶν Καθαρμῶν libri alterius prooemium'.

AUTHOR/DATE INDEX TO THE BIBLIOGRAPHY

Acri, 1870
Adam, 1908
Adamson, 1908
Alessio, 1887
Altheim, 1954
Anonymous, 1866
Anonymous, 1881
Anonymous, 1935
Apelt, 1857
Armstrong, 1947, cf. 1965
Arnim, *see* von Arnim
Arundel, 1962, 1963

Baccou, 1951
Bacigalupo, 1965
Baestlein, 1875
Baeumker, 1890
Bakewell, 1907
Bakhuizen van den Brink, 1842
Bakker, 1930
Baltzer, 1876, 1879
Bartolini Niccolini, 1955
Battistini, 1949 *bis*, 1955
Bauch, 1910
Bauer, 1961
Beardslee, 1918
Beare, 1906
Becker, 1937
Benn, 1882, 1898, cf. 1914
Bergk, 1835, 1836, 1837, 1839, 1842, 1844, 1853, 1870, cf. 1886
Bertini, 1868, 1869
Bidez, 1894, 1896
Bignone, 1915, 1916 *bis*, 1918, 1929, cf. 1938, 1941
Blass, 1883
Bluck, 1961
Bock, 1958
Bodrero, 1904, cf. 1905
Boeker, 1962
Bollack, J., 1957, 1958, 1959, 1960, 1965 *bis*
Bollack, M., 1963
Bollack, P., 1959
Booth, 1960
Boussoulas, 1958, 1960
Boyancé, 1927
Brandis, 1829, 1835, 1862
Bréhier, 1926, cf. 1941
Bréton, 1882
Brink, 1851
Brumbaugh, 1964
Brunet, 1935
Buhl, 1956
Burkert, 1962
Burnet, 1892, 1914, 1923, cf. 1930
Buttmann, cf. 1805 Sturz
Byk, 1876

Calogero, 1960
Capelle, 1922, 1935, cf. 1953, cf. 1958
Carus, 1808
Casini, 1963
Cataudella, 1960
Chaignet, 1887
Cherniss, 1935
Clark, 1929
Clemens, 1839
Clermont-Ganneau, 1900
Cleve, 1965
Cornford, 1912, 1926
Covotti, 1901, 1934

Deichgraeber, 1930, 1941, cf. 1952
Delatte, 1934
Delcourt, 1938
de Ruggiero, *see* Ruggiero
de Santillana, *see* Santillana
des Places, 1956
Detienne, 1959
Deussen, cf. 1894, 1911
de Vogel, 1950
Dezeimeris, 1846
Diels, 1873, 1880, 1884, 1897, 1898 *bis*, 1899, 1901, 1903, cf. 1934
Diès, cf. 1887 Tannery, 1909
Dieterich, 1893, cf. 1913
Doering, 1895, 1903

DUEMMLER, 1889, 1894
ЂУРИЋ (ĐURIĆ), 1956

EISLER, 1910
ELLIS, 1902
EMMINGER, 1883
EMPERIUS, 1847
ENGLISH, 1914
ENRIQUES, 1936, 1937
ΕΥΑΓΓΕΛΙΔΗΣ, 1885

FAIRBANKS, 1897, 1898 *bis*
FARINA, 1948
FARRINGTON, 1944
FERGUSON, 1964
FERRARI, 1891, cf. 1892
FISCHER, 1911
FOERSTER, 1939
FRAENKEL, 1923, cf. 1929 BIGNONE, cf. 1948
FRANÇOIS, 1957
FRANZÒ, 1905
FREDRICH, 1899
FREEMAN, 1946, 1948, cf. 1949
FRENKIAN, 1937
FRIEDLAENDER, 1938
FRIES, 1837
FRITZ, *see* VON FRITZ
FUCHS, 1957
FULLER, 1923
FURLEY, 1957

GAISFORD, 1823
GERKE, 1953
GILBERT, 1907, 1911
GLADISCH, 1847, 1858, 1861
GOEBEL, 1910
GOMPERZ, 1896 *bis*
GRABOWSKI, 1923
GRIMAL, 1942
GRONINGEN, *see* VAN GRONINGEN
GRUPPE, 1851
GUTHRIE, 1957, 1962, cf. 1965

HALBERTSMA, 1949
HALLIER, 1857
HARDY, 1884
HAUSSLEITER, 1935
HEATH, 1913
HEGEL, 1805, cf. 1833, cf. 1840
HEIDEL, 1906, 1910, 1913
HEINIMANN, 1945
HENNEGUY, 1874
HERBERTZ, 1913
HICKS, 1912
HIRSCHERBERG, 1920
HIRZEL, 1885
HOELSCHER, 1965 *bis*
HOLLENBERG, 1853
HOLWERDA, 1955
HOMMEL, 1951
HORNA, 1930
HOWALD, 1925

JACKSON, 1902, 1907
JAECKEL, 1902
JAEGER, 1947
JANNACONE, 1965
JIRÁNI, 1904
JOBST, 1907
JOEHRENS, 1939
JOËL, 1903, cf. 1906, 1921
JOUANNA, 1961

KAFKA, 1921, 1923
KAHN, 1960 *bis*
KARSTEN, 1838
KERN, 1888
KERSCHENSTEINER, 1962
KINKEL, 1906
KIRK, 1957
KNATZ, 1891
KRANZ, cf. 1903 DIELS, 1912 *bis*, 1916, cf. 1934, 1935, 1938, cf. 1938, 1939 *bis*, 1941, 1943, 1949, cf. 1949, 1957
KRISCHE, 1840
KUEHNEMANN, 1899

LACKENBACHER, 1913
LAST, 1924
LEISEGANG, 1950
LENOIR, 1927
LEONARD, 1908
LESKY, 1950
LIEBERG, 1958
LIOY, 1871
LLOYD, 1901, 1935
LOEW, 1937
LOEWY-CLEVE, *see* CLEVE

LOMMATZSCH, 1830
LONG, 1942, cf. 1948, 1949
LONGRIGG, 1963, 1964, 1965 *bis*
LORTZING, 1903, 1911
LOVEJOY, 1909

MCCLURE, 1935
MCDIARMID, 1953
MADVIG, 1871
MAGNUS, 1901
MARTANO, 1963
MARTIN, 1879
MAZZANTINI, 1949
MELSEN, *see* VAN MELSEN
MERZDORF, 1874
ΜΗΤΡΟΠΟΥΛΟΣ, 1963
MIELI, 1913, 1935
MILLERD, 1908
MINAR, 1963
MINZ, 1960
MONDOLFO, 1934, cf. 1956
MUELLER, 1965
MUGLER, 1949, 1951, 1953 *bis*
MULLACH, 1850, 1853, 1860
MUNDING, 1954

NAGY, 1901
NÉLOD, 1959
NESTLE, cf. 1844 ZELLER, cf. 1883 ZELLER, 1906, 1908 *bis*, cf. 1922, cf. 1928, cf. 1929, 1940, cf. 1942, cf. 1948
NIETZSCHE, 1873 *bis*, cf. 1903, cf. 1913
NILSSON, 1941
NORDEN, 1915

O'BRIEN, 1965
OWENS, 1959

PANZERBIETER, 1844, 1845
PASCAL, 1902
PEARSON, 1909
PEITHMANN, 1902 *bis*
PELLATI, 1951
PETERSEN, 1832, 1837
PEYRON, 1810
PFLIGERSDORFFER, 1959
PHILIPPSON, L., 1831
PHILIPPSON, R., 1921
PIZZAGALLI, 1917
PLACES, *see* DES PLACES
PLATT, 1896
POWELL, 1923
PRANTL, *see* VON PRANTL
PRÉAUX, 1964
PRELLER, 1837, 1888, cf. 1913

РАДЛОВЪ (RADLOFF), 1889
RATHMANN, 1933
RAVEN, 1957
RAYNAUD, 1849
REGENBOGEN, 1931, cf. 1961
REICHE, 1960
REINACH, 1876
REINHARDT, 1950, cf. 1960
REY, 1939
REYMOND, 1924, cf. 1955
RITTER, 1818, 1829, cf. 1836, 1838, cf. 1913
RIVAUD, 1906, 1929, 1948, cf. 1960
ROBIN, 1918, 1923, cf. 1932, cf. 1948, cf. 1963
ROHDE, 1894, cf. 1921
ROLLAND, 1918, cf. 1931
ROSTAGNI, 1923, cf. 1924
RUCH, 1963
RUDBERG, 1952
RUGGIERO, 1920, cf. 1921
RUPPRECHT, 1924

SAENGER, 1932
SAMBURSKY, 1956
SANGERMANO, 1911
SANTILLANA, 1936, 1937, 1961
SARTON, 1953
SARTORIUS, 1883
SCALIGER, cf. 1805 STURZ
SCHARNAGL, 1908, cf. 1909
SCHLAEGER, 1878
SCHLEIERMACHER, 1839
SCHNEIDEWIN, 1851
SCHUHL, 1934, cf. 1949
SCHULTZE, 1877
SCHUMACHER, 1940, 1941, cf. 1963
SCHWABL, 1956, 1957
SCINÀ, 1813, cf. 1911 SANGERMANO
SCOON, 1928
SHARPE, 1930
SIEBECK, 1880
SIEGEL, 1959
SKEMP, 1942, 1952

SNELL, 1943, 1946, cf. 1955
SOLMSEN, 1950, 1958, 1960, 1963 *bis*, 1965
SOUILHÉ, 1932
SPRENGEL, 1825
STACE, 1920
STÉGEREN, *see* VAN STÉGEREN
STEIN, 1852 *bis*, 1860
STEINHART, 1840 *bis*
STEPHANUS, cf. 1805 STURZ
STERN, 1960
STETTNER, 1934
STIEHL, 1954
STRUVE, 1805
STURZ, 1805
SULZBERGER, 1934
SUSEMIHL, 1856
SYMONDS, 1873, cf. 1893

TAEGER, 1937
TAILLARDAT, 1959
TANNERY, 1887 *bis*, cf. 1930
TEN BRINK, *see* BRINK
THIELE, 1897
THIVEL, 1965
THOMAS, H. P. F., 1924
THOMAS, H. W., 1938
TIMPANARO CARDINI, 1957, 1958, cf. 1959, 1960
TISCHER, 1843
TKATSCH, cf. 1928, 1932
TOURNEY, 1956
TRAGLIA, 1931, 1952 *bis*, 1963
TUCKER, 1931

UEBERWEG, 1863, cf. 1926
UNGER, 1884

VAN DEN ES, 1880
VANDERCOILDEN, 1945
VAN GRONINGEN, 1956 *bis*, 1958
VAN MELSEN, 1949
VAN STÉGEREN, 1879
VEAZIE, 1917, 1918, cf. 1922
VECKENSTEDT, 1888
VERDENIUS, 1942, 1946, 1948 *bis*, cf. 1964
VERTUE, 1956
VLASTOS, 1947, 1952
VOGEL, *see* DE VOGEL
VOILQUIN, 1941
VON ARNIM, 1902, 1909, cf. 1913
VON FRITZ, 1946
VON PRANTL, 1849
VON WILAMOWITZ-MOELLENDORFF, *see* WILAMOWITZ-MOELLENDORFF

WACHSMUTH, 1923, cf. 1924
WACKERNAGEL, 1931
WALTER, 1893
WASZINK, 1946
WELLMANN, 1905
WEST, 1962
WESTMAN, 1955
WILAMOWITZ-MOELLENDORF, 1902, 1905, 1929, 1930 *bis*, cf. 1935
WINDELBAND, 1888, cf. 1923
WINNEFELD, 1862
WIRTH, 1845
WOLF-HARTMUT, cf. 1929 BIGNONE, cf. 1948
WOODBRIDGE, 1901
WRIGHT, 1921
WUNDT, 1908
WYBRANDS, 1879

ЯКУВАНИС (YAKUVANIS), 1906, cf. 1945

ZAFIROPULO, 1953, 1954
ZELLER, 1844, 1878, 1883, cf. 1919, cf. 1920, cf. 1928
ZIEGLER, 1911, cf. 1912, 1913
ΖΟΥΜΠΟΣ, 1960, 1962, 1963
ZUNTZ, 1965

INDEX LOCORUM

ACHILLES TATIUS
Isagoga in Aratum
ed. E. Maass, Berolini 1898.
4, p. 34. 20–3 148 n. 1
5, p. 35. 10–11 192 n. 2
6, p. 37. 10–13 4 n. 2. 24. 277 n. 6. 284

AELIANUS
De natura animalium
ed. R. Hercher, *BT* 1864–6.
16. 29 202 n. 1

AESCHYLUS
Agamemnon
650–2 308
Prometheus
94–5 86. 88

Fragmenta
ed. A. Nauck, 2nd edn, Lipsiae 1889.
ed. H. J. Mette, Berlin 1959.
321 Mette 86
341 Mette 86

AETIUS
De placitis philosophorum
ed. H. Diels, *Doxographi graeci*, Berolini 1879.
1. 5. 2 145 n. 3
1. 7. 28 38 n. 1. 249 n. 2
1. 15. 3 Bibliography, 365
1. 26. 1 249 n. 2
1. 30. 1 285. 165 n. 4
1. 30. 2 165 nn. 3 and 4
2. 1. 4 134 n. 3
2. 4. 6 78 n. 1
2. 4. 8 The cyclic system, *179*
2. 6. 3 52 n. 3. Order of separation of the elements, *288* ff. 294
2. 7. 6 148 n. 1
2. 7. 7 123 n. 1
2. 8. 2 296
2. 9. 1 124 n. 2. 126
2. 11. 2 52 n. 1. 287 n. 2
2. 13. 2 52 n. 1. 291
2. 17. 4 304 n. 2
2. 21. 1 134 n. 4
2. 21. 2 134 n. 4
2. 23. 3 299

AETIUS (*cont.*)

2. 25. 15 — 52 n. 1
2. 30. 1 — 52 n. 5
2. 31. 1 — 134 n. 2
2. 31. 4 — 173 n. 6
3. 11. 3 — 123 n. 1
3. 16. 3 — 294
4. 2. 1 — 40 n. 1
4. 5. 8 — 330 n. 2
4. 9. 14 — 190
4. 9. 15 — 190. Account of pain taken from fr. 22, *309*
4. 22. 1 — 206
5. 7. 1 — 125 n. 2. 205 n. 5
5. 11. 1 — 228 n. 1
5. 18. 1 — Increasing speed, *46–53*. 272
5. 19. 5 — 179 (cf. 231). Distribution of animals among the elements, *190–5*. The zoogony, *196*ff.; especially the οὐλοφυῆ, 204; and the sequence of stages, *230–1*; also 232, 233
5. 22. 1 — 201 n. 2. 213 n. 4
5. 25. 4 — 166
5. 26. 4 — 50 n. 1. 183 n. 2. 194 n. 1. 206. 233
5. 27. 1 — 52 n. 8. 194 n. 1
5. 28 — 190

ALEXANDER

Metaphysica

ed. M. Hayduck, *CAG* vol. 1, 1891.

342. 37–343. 3 — 54 n. 1
592. 31–2 — 16

ap. Philop. *De gen. et corr.*

268. 8–13 — 38 n. 1

ap. Simpl. *De caelo*

528. 14–29 — 262–3. 288
528. 29–30 — 100–1
586. 25–587. 26 — 13. 173 n. 5

ap. Simpl. *Phys.*

1125. 3–14 — 29–30. 252

ANATOLIUS

De decade

ed. J. L. Heiberg, *Annales internationales d'histoire, Congrès de Paris*, 1900, section 5, *Histoire des sciences*, pp. 27–57. Published by Librairie A. Colin, Paris 1901

p. 30 — Interpretation of μοναδικὴ φύσις in Empedocles, *120–1*

ANAXAGORAS

Fragmenta

1 — 43
9 — 51–2
12 — 78. 241
14 — 241 n. 3. 246

ANAXAGORAS (*cont.*)
ap. Arist. *Phys.*
205 b 2 21
ap. Hippol. *Ref.*
1. 8. 3 298

ANAXIMANDER
Fragmenta
1 74
ap. Arist. *De caelo*
295 b 10–16 298
ap. Arist. *Phys.*
203 b 13–14 96
ap. Hippol. *Ref.*
1. 6. 1 96
ap. Plato *Tim.*
62 D 12–63 A 2 298

ANAXIMENES
see the general index.

ANONYMUS
1 *in Aratum*
ed. E. Maass, Berolini 1898.
6, p. 97. 24–9 4 n. 2. 23. 277 n. 6. 284

ANTIMACHUS
Fragmenta
ed. B. Wyss, Berolini 1936.
96 267 n. 4
ap. Herodianum
2. 16. 17–29 Lentz 109 n. 5

ANTONINUS, MARCUS AURELIUS
In semet ipsum.
ed. A. S. L. Farquharson, Oxford 1944.
8. 41 23. 96 n. 4
11. 12 23. 96 n. 4
12. 3 23. 96 n. 4. 277 n. 6. 284

APOLLONIUS RHODIUS
Argonautica
ed. H. Fränkel, *OCT* 1961.
1. 496–518 322–3
3. 82 82
3. 814 284
4. 888 284
4. 1423–4 204

APULEIUS
ed. P. Thomas, *BT* 1908.
De deo Socratis
7–13 192 n. 2
De Platone et eius dogmate
1. 11 192 n. 1

ARATUS
Phaenomena
ed. E. Maass, Berolini 1893.
ed. J. Martin, Firenze 1956.
22–3 138
ARISTOCLES
ap. Eus. *Praep. evang.*
15. 14. 2 71 n. 1
ARISTOTELES
De anima
ed. W. D. Ross, Clarendon Press, Oxford 1961.
edd. A. Jannone et E. Barbotin, Budé 1966.
403b28–404b8 Aristotle's classification of Empedocles' soul, 334–5
404b8–407b26 Style of quotation of fr. 109, 286 n. 11. Empedocles' soul made of all the elements, 301 n. 1. Perception by likes, 303–4. Critias' blood-soul, 330 n. 1. Aristotle's classification of Empedocles' soul, 334–5
407b27–408a30 213 n. 4. Aristotle's classification of Empedocles' soul, as evidence for the nature of the *daimon*, 334–6
409b18–410b15 145. 279 n. 10. 'Like to like', 301–4
415b28–416a2 194 n. 1
416a21–33 303
418b20–6 54 n. 2
430a29 286 n. 7
430a30 Evidence for monsters, 202, 220–1
De caelo
ed. D. J. Allan, *OCT* 1937.
ed. O. Longo, Firenze 1962.
ed. P. Moraux, Budé 1965.
270b24–5 292 n. 7
279b14–17 Preference for Empedocles over Anaxagoras or Democritus, 61, 73. Use of the man–child metaphor for the cosmic cycle, 94, 126. Evidence for alternation, 170–2
279b17–21 41 n. 8
280a11–24 Approximation of the cosmic cycle to an eternal world, 37–8. Preference for Empedocles over Anaxagoras or Democritus, 61, 73. Use of the man–child metaphor for the cosmic cycle, 94, 126. Evidence for alternation, 170–2, 173 n. 7, 180–1. A guide to Aristotle's criticism of the *dine*, 264. Some support for the equation of mixing and perishing of the elements, 315–16
284a24–6 16. 51
288a13–289a10 18 n. 1. 53–4
293a27–b4 120–1. 123 n. 2. 124
293b9 123 n. 2
294a26–7 286
295a10–13 263–4
295a16–21 51. 298–9
295a29–32 15–16. 53 n. 3. Main interpretation of Aristotle's criticism of the *dine*, 262–5

ARISTOTELES (*cont.*)

295a32–b1 265
295b10–16 298 n. 1
300a20–b8 12. 51 n. 4
300b 8–25 11. 12
300b25–31 Evidence for the movement of the fully separated elements, *12–14*, 15, 34. The expression ἐπὶ τῆς φιλότητος, as evidence for the cyclic system, 172–4, 176; and for the zoogony, 200–1, 204. Style of quotation, 286 n. 8
301a11–20 Evidence for the movement of the fully separated elements, *10–11*, 14, 15. Association of movement and plurality, rest and unity, 39–40, especially in Aristotle's estimation of the Milesians, 40–3. Preference for Anaxagoras over Empedocles, 73. Omission of the cosmogony of increasing Love, as a guide to fr. 35. 5, 119 n. 3. Evidence for the arrangement of the fully separated elements in concentric spheres, *147–8*. Omission of the cosmogony of increasing Love, as evidence for the cyclic system, 175–7; against Hölscher, 180; and against Solmsen, 186–7; as evidence for the zoogony, 200; as a guide to Aristotle's criticism of the *dine*, 265; as evidence for placing the storm of the elements, 270
302a28–b9 73. 292 n. 7
302b20–30 73
308a3–4 34
308a15–17 115
308b3–309a18 35. 115 n. 2
309a19–21 34–5

De generatione animalium
ed. H. J. Drossaart Lulofs, *OCT* 1965.

718b32–6 190 n. 1
722b8–17 209–10. 227 n. 2
722b17–20 ἐπὶ τῆς φιλότητος, as evidence for the cyclic system, 172–3; compared with the same expression in the *De caelo*, 175–6; as evidence for the first stage of the zoogony of increasing Love, 200. Aristotle's style of quotation from Empedocles, 286
722b20–8 ἐπὶ τῆς φιλότητος, as evidence for the cosmic cycle, 172–3. Significance of τότε, 175. ἐπὶ τῆς φιλότητος, compared with the same expression in the *De caelo*, 175–6. Evidence for the first stage of the zoogony of increasing Love, 200–2. Not a guide to the interpretation of fr. 20, 219. Separate limbs described as ζῶια, 235
747a34–b10 74 n. 1
761b8–23 192 n. 1
764a1–b3 125 n. 2. 205 n. 5
764b3–18 209–10
765a8–10 205 n. 5

ARISTOTELES (*cont.*)
De generatione et corruptione
ed. H. H. Joachim, Clarendon Press, Oxford 1922.

314a16–17	103 n. 2
314b7–8	285 n. 11
314b19	285 n. 8
314b20–3	The 'weight' of the elements, 34 n. 7. Aristotle's paraphrase of fr. 21. 6, 35 n. 1. Aristotle's quotation of fr. 21, the order of verses, 226 n. 1; the reading λαμπρός or λευκός in line 3, 285 n. 4
314b24	285 n. 8
315a10–11	The 'weight' of the elements, 35, 149 n. 2. Aristotle's paraphrase of fr. 21. 6, 267. Aristotle's quotation of fr. 21. 3, 285 n. 8
315a16–17	Millerd's view of the 'fighting' of the elements, 142
315a19–23	Indication that the Sphere was at rest, *9*, *15*
315a26ff.	The principle 'like to like', Aristotle's appraisal of Democritus, 302
315a34–b8	On 'like to like', *302–4*
323b1–12	On 'like to like', *301–4*
333a16–334a15	The 'equality' of the elements, 135–6. On air and aether, 292 n. 6
333b12–20	Strife as cause of unnatural movement, 14; explains a passage in the *De anima* on the nature of the ψυχή, 335 n. 4
333b22–334a5	Strife as cause of unnatural movement, 14. Love's movement of earth, 36 n. 2. Harsh criticism of Empedocles, 54 n. 2, 73. Two 'moving causes', 103 n. 2. The 'random' movement of the elements, 147–8. The movement of earth by Love and Strife, 149 n. 3. Love's movement of earth misinterpreted by Hölscher, 173–4. The 'random' movement of the elements, 214; a guide to Aristotle's criticism of the *dine*, 264. Aristotle's quotation of fr. 54, and evidence for the storm of the elements, *269–70*. On air and aether, 292 n. 4
334a5–9	Alexander's interpretation of the demand for a first mover, 38 n. 1. Lack of a first cause, 61 n. 3, 67. Increasing Love πρότερον, a guide to the placing of the golden age, 76 n. 2. Increasing Strife νῦν, comparison with Plato's *Politicus*, 94 n. 2. Increasing Love πρότερον, evidence for the tenses of fr. 35, 110 n. 2. The 'random' movement of the elements, 147–8. Evidence for the cyclic system, 172–5. Significance of the expression ἐπὶ τῆς φιλότητος, compared with the *De caelo*, 176; misinterpreted by Solmsen, 186–7. Increasing Love πρότερον, evidence for the zoogony, 204–5; as a guide to the interpretation of 'here' and 'there' in the *Physics*, 255–6; and as a guide to Aristotle's criticism of the *dine*, 263–4
334a9–10	301 n. 1

[Aristoteles]
De mundo
ed. W. L. Lorimer, Paris 1933.
391b17 and 20 37
399b26 286 n. 3

Aristoteles
De partibus animalium
ed. B. Langkavel, *BT* 1868.
ed. A. L. Peck, *LCL* 1937.
ed. P. Louis, Budé 1956.
640a18–22 Cf. bibliography, 346
640b4–8 103 n. 2. 213
640b11–15 213. Cf. bibliography, 346
642a18–24 213 n. 4
648a23–31 190 n. 1. 205 n. 5

[Aristoteles]= Nicolaus Damascenus
De plantis
ed. E. H. F. Meyer, Lipsiae 1841.
5. 9–11 281 n. 3
5. 13–14 207
6. 17–18 281 n. 3
10. 6–9 207
10. 15–17 207

Aristoteles
De respiratione
ed. W. D. Ross, Clarendon Press, Oxford 1955.
473b21 Distinction of ἀήρ and αἰθήρ in relation to fr. 100, *291–2*
477a27–31 The migration of fish from dry land to sea, 190. Distribution of animals among the elements on the principle of like to like, 192 n. 1
477a32–478a10 Empedocles' fiery fish, 190–4
De sensu
ed. W. D. Ross, Clarendon Press, Oxford 1955.
438a3 151 n. 5
440a10–11 285 n. 9
Ethica Eudemia
ed. F. Susemihl, *BT* 1884.
1235a5–12 304 n. 3
Ethica Nicomachea
ed. F. Susemihl, *BT* 3rd edn curavit O. Apelt, 1912.
1147a19–22 141 n. 1. 322 n. 11
1147b11–12 141 n. 1. 322 n. 11
1155a32–b8 302. 304
Historia animalium
ed. L. Dittmeyer, *BT* 1907.
(The relevant volume has not yet appeared in the Loeb edition by A. L. Peck, nor in P. Louis' Budé edition.)
552b9–17 Fire animals, 192 n. 1

ARISTOTELES (*cont.*)
Magna moralia
ed. F. Susemihl, *BT* 1883.
1208b8–20 304 n. 3

[ARISTOTELES]
De Melisso Xenophane Gorgia
ed. H. Diels, *Philosophische und historische Abhandlungen der königlichen Akademie der Wissenschaften zu Berlin*, 1899–1900, no. 1.
975b6–14 165 n. 4
976a36 286 n. 6
976b22–4 The question of continuous movement, 6–7, *36–8*
976b25–7 74 n. 1. 322 n. 2
977b1 139 n. 4

ARISTOTELES
Metaphysica
ed. W. D. Ross, Clarendon Press, Oxford 1924, a corrected impression 1953.
ed. W. Jaeger, *OCT* 1957.
984b8–985a31 Doxographical use of αὐτῶι, 9 n. 2. Love and Strife as principles of good and evil, 51 n. 2. Aristotle's general estimation of Empedocles, 72 nn. 7 and 8. Two 'moving causes', 103 n. 2. The arrangement of the fully separated elements, *147–9*. The kind of evil caused by Strife, 148. Description of alternation, 170–2, 188–9. Anaxagoras' moving cause, 245. Alleged inconsistency in the use of Love and Strife, 311–12. The probable context of fr. 37, 315. Supposed evidence for fr. 35. 7, 321, 322
985b23 44
986a22–6 44 n. 1
986a27–31 44
986b18–34 72 n. 9. 73 n. 5
987a7–13 103 n. 2
988a32–4 103 n. 2
988b6–11 103 n. 2
989a19–26 95. 103 n. 2
993a15–24 72 n. 7. 213 n. 4

[ARISTOTELES]
Metaphysica α'
994a5–7 52 n. 2
994a22–b3 94 n. 5. 126 n. 2. 264 n. 3

ARISTOTELES
1000a18–b20 Doxographical use of αὐτῶι, 9 n. 2. Empedocles' failure to provide a first cause, 61. General estimation of Empedocles, 73 n. 6. Alternation and fr. 30, 75 n. 1, 78 n. 2, *81*, *83–5*. Criticism of the Sphere as unintelligent, 145. Aristotle's style of quotation from Empedocles, 286
1004b27–9 39
1012b29–30 54

ARISTOTELES (*cont.*)

1015a1 285 n. 11
1050b22–4 16
1071b26–33 43 n. 1. 43
1073a5–11 241 n. 3
1075a38–b11 95. 103 n. 2
1091b6–12 103 n. 2

Meteorologica

ed. F. H. Fobes, Cantabrigiae Massachusettensium 1919.

339b21–5 292 n. 7
340a8–17 135–6
341a35–6 285 n. 4
354b33–355a21 304 n. 2
369b11–370a10 73 n. 1. 292 n. 7
382a6–8 192 n. 1

Physica

ed. W. D. Ross, Clarendon Press, Oxford 1936, corrected impression 1955.

184b15–22 15. 40
185a10 73 n. 5
187a20–6 Evidence for the cyclic system, *169–70*. 171–2.
188a17–18 73 n. 1
189a15–17 73 n. 1
196a19–24 The 'random' movement of the elements, 147–8, 214 n. 1. Simplicius on the role of chance, 150 n. 3. Aristotle's quotation of fr. 53, and evidence for the storm of the elements, *269–70*. On air and aether and fr. 53, 292 n. 5
198b10–34 Two 'moving causes', 103 n. 2. The combination of tenses in the account of monsters, 175, 192. Evidence for the zoogony, 202 n. 1. Probable source of Philoponus' account of men and women in the zoogony, 212–13. Account of teeth, possible influence on Simplicius, 213 n. 3. Account of monsters, *216–17*. Bibliography, 393
199b5–13 Criticism of the two zoogonies illustrates criticism of 'equal times', 63; as evidence for cyclic system, 177; misunderstood by Solmsen, 185. Evidence for zoogony, 202. Omission of plants from zoogony, 206. Account of οὐλοφυῆ and monsters misinterpreted by Philoponus and Cherniss, 207–9. Monsters, 217. Omission of plants from zoogony not evidence against cosmic interpretation of fr. 20, 225. Monsters, 235–6. Style of quotation, 286
201b16–21 39
203b10–15 41 nn. 4 and 6. 96 n. 1. 103 n. 2
205b2 21 n. 1
213b22–7 124 n. 2. 125 n. 1
217b6–7 285 n. 10
227b3–231a4 18 n. 1. 29 n. 2
250b11–15 41 n. 4. 41 n. 7
250b21–251a5 and 252a3–32 Meaning of rest 'in the between times', 6, *7–9*, *15*. Simplicius' interpretation, *26–30*. Eudemus'

ARISTOTELES (*cont.*)

interpretation, *30–1*. Successive worlds at 250b22 misinterpreted by Kirk, 41 n. 4. 'Equal times', 56–7, *59–69*. The cycle approximates to an eternal world, 73 n. 1, 75. Comparison of frr. 30 and 115, 75 n. 1. On Anaxagoras, 78 n. 1. Comparison with fr. 30 and the account of alternation in the *Metaphysics*, *83–5*. Uses of ἐν μέρει as evidence for the cyclic system, *98–9*. Two 'moving causes', 103 n. 2, 103. Evidence for the cyclic system, 169–70, 171–2; misinterpreted by von Arnim, 174. Aristotle's supposed misunderstanding of ἀκίνητοι, *252–61*. Possible paraphrase of κρατέουσι in fr. 26. 1, 319–20

261a27–265a12 18 n. 1. 29 n. 1
265b17–23 103 n. 2
267b9 241 n. 3
267b17–26 241 n. 3

[ARISTOTELES]
Problemata
ed. C. A. Ruelle, recensuerunt H. Knöllinger et I. Klek, *BT* 1922.
975a11–16 189 n. 2. 290 n. 1

ARISTOTELES
Rhetorica
ed. W. D. Ross, *OCT* 1959.
1407a32–7 322 n. 11
Fragmenta
ed. V. Rose, *BT* 1886
Fragmenta selecta ed. W. D. Ross, *OCT* 1955.
70 Rose 322 n. 10
201 Rose 74 n. 2. 124 n. 2
208 Rose 44 n. 3

ATHENAEUS
Deipnosophistae
ed. G. Kaibel, *BT* 1887–90.
libros 1–2 edd. A. M. Desrousseaux et C. Astruc, Budé 1956.
2. 57F 52 n. 6
8. 353E–F 193 n. 1

ATHENAGORAS
Apologia pro Christianis
ed. E. Schwartz, Leipzig 1891.
22, p. 26. 18 136 n. 1

AUGUSTINUS
De civitate dei
edd. B. Dombart et A. Kalb, *BT* 4th edn, 1928–9.
7. 6 192 n. 2
Contra epistolam Manichaei quam vocant fundamenti
ed. J. Zycha, *CSEL* vol. 25 (sect. 6 pars 1), 1891.
28–32 192 n. 2. 194 n. 6

AUGUSTINUS (*cont.*)
De Genesi ad litteram
ed. J. Zycha, *CSEL* vol. 28 (sect. 3 pars 1), 1891.
3. 9 192 n. 2
De haeresibus ad Quodvultdeum
edd. Benedictini Maurini, *PL* vol. 42, 1841.
46 *ad init.* 192 n. 2

AUSONIUS
Idyllia
ed. R. Peiper, *BT* 1886.
16. 4, p. 90 96 n. 4

CAELIUS AURELIANUS
Tardarum sive chronicarum passionum libri v
ed. I. E. Drabkin, Chicago 1950.
1. 5. 145 23. Bibliography, 375

CATULLUS
Carmina
64. 155 Bibliography, 397

CENSORINUS
De die natali
ed. O. Jahn, Berolini 1845
ed. Ivan Il'ich Kholodniak (= Johannes Cholodniak), Petropoli 1889.
4. 7–8 125 n. 2. Zoogony, *217–18*
5. 4 228 n. 1
6. 6–7 228 n. 1
6. 9–10 228 n. 1

CHALCIDIUS
in Timaeum
ed. J. H. Waszink, Londinii et Leidae 1962.
119–20 192 n. 2. 194 n. 6

CICERO
De natura deorum
ed. A. S. Pease, Cambridge, Massachusetts, 1955–8.
1. 26 40 n. 1
1. 29 Bibliography, 342
1. 103 115. 192 n. 2
2. 42 192 n. 2
2. 84 115
2. 116 115
Ad Quintum fratrem
ed. H. Moricca, in the series *Corpus Scriptorum Latinorum Paravianum*, Torino 1954.
2. 9. 3 Bibliography, 360
Tusculanae disputationes
edd. T. W. Dougan et R. M. Henry, Cambridge University Press, Cambridge, vol. 1 1905, vol. 2 1934.
1. 23. 54 39 n. 2
5. 69 115

CLEMENS
Stromata
ed. O. Stählin, 3rd edn by L. Früchtel, *GCS* 1960.
5. 9. 4–7 100 n. 4
5. 85. 3 277 n. 2
5. 122. 3 100 n. 3
6. 17. 4 136 n. 1. 278. 286
6. 149. 1 286

CORNUTUS
Epidrome = *Theologiae graecae compendium*
ed. C. Lang, *BT* 1881.
17, p. 30. 1–8 228 n. 4

CORPUS HERMETICUM *see* HERMETICA

DEMOSTHENES
edd. S. H. Butcher et W. Rennie, *OCT* [1903–31].
ed. L. Gernet, Budé 1954–60.
Against Dionysodorus
56. 3 85–6
56. 5 85–6
56.10 85–6

DICAEARCHUS
? *ap.* Porph. *Vita Pyth.*
18–19 126 n. 5

DIODORUS SICULUS
libros 1–20 edd. F. Vogel et C. T. Fischer, *BT* 1888–1906.
1. 7 Animals corresponding to the elements, 192 n. 1. Wombs, their nourishment, 206; perhaps taken from Empedocles, 215; apparently pangenetic, 232. The storm of the elements, 272. The manner of separation of the elements, 294–6. Bibliography, 391

DIOGENES LAERTIUS
Vitae philosophorum
ed. H. S. Long, *OCT* 1964.
1. 67 Bibliography, 379
2. 9 204 n. 3
7. 137 71 n. 2
8. 65 Bibliography, 337
8. 76 37. 137 n. 1. 281 n. 6

DIOGENES OENOANDENSIS
Fragmenta
ed. J. William, *BT* 1907.
ed. A. Grilli, in the series *Testi e Documenti per lo Studio dell'Antichità*, no. 2, Istituto Editoriale Cisalpino, Milano e Varese 1960.
9 William (= 10 Grilli) 215 n. 3

DIONYSIUS PERIEGETES
Orbis descriptio
ed. K. Müller, *Geographi graeci minores*, 2 vols., Didot, Parisiis, 1855–61: vol. 2, pp. 103–76.

27 139

EMPEDOCLES
Fragmenta

2 164. Bibliography, 349, 358, 369, 391
3 Exemplifies Plutarch's style of quotation, 152. Bibliography, 342, 391
4 Bibliography, 358
5 Bibliography, 347
6 Order of numeration of the elements, 140. Divine names for the elements, not an indication of the meaning of *daimon* in fr. 59. 1, 327. Bibliography, 342, 354, 356, 380
8 Supposed correlation of death and separation, birth and mixture, 165–6. Empedocles' answer to Parmenides. Exemplifies Aristotles' style of quotation, 285. Bibliography, 363, 381 *bis*, 387, 393
9 Empedocles' answer to Parmenides, 77. Supposed correlation of death and separation, birth and mixture, 165–6. Bibliography, 381, 393
11 Bibliography, 378
12 Not a denial of the cyclic system, 180–1
13 and 14 The question of void, 74 n. 1. Use of τὸ πᾶν, 322
15 Empedocles' answer to Parmenides, 243
16 Not a denial of the cyclic system, 180–1. Endless succession of the cosmic cycle, 249
17 No comparable description of the alternation of rest and movement, 19. Possible reflection of lines 1 and 16 in the meaning of μονίη, 22–4. Possible influence of lines 6 and 12 on the later interpretation of continuous movement, *37–8*. Possible reminiscences in Plato's and Aristotle's general account of cosmic rest and movement, *43*. Connotation of equality, 70–1, 70 n. 2. Empedocles' answer to Parmenides, 77. Loose connotation of time, 80 n. 1. Connotation of equality, 83 n. 1. Origin of the view of 'four periods', *93*. Lines 16–20 as an account of the shape of Love and Strife, *129–44*. Connotation of equality, 133 n. 1, 135–6. Confusion of ἕκαστα and πάντα in Simplicius' reading of line 8, 137. Significance of the juxtaposition of fire and water in line 18, 140. Possible reminiscence of ἓν...μόνον in the *Timaeus*, 144. Repeated quotation of lines 7–8 by Simplicius, 150. Repeated variants in lines 7, 12 and 29, 151. Emendation and interpretation especially of lines 3–5 as evidence for the cyclic system, 157, 158 n. 3, *163–8*. Restoration of line 8a from fr. 26. 7, 168 n. 1. Order of increasing Love and increasing Strife, 175. Possible paraphrase of lines

EMPEDOCLES (*cont.*)

3–5 in Aetius, 179. Interpretation of lines 3–5, against Hölscher, 180. Association of sex with Aphrodite, Zeller's argument against Dümmler, 210. Recapitulation in fr. 26, 211. Connotation of ἄλλοτε δ' αὖ, 223. Relation to frr. 20, 21 and 26, 224. Empedocles' answer to Parmenides, 243. General significance of lines 19–21, 245–6. Exemplifies the quality of Simplicius' exemplar, 276, 277, 277 n. 10, 278. Exemplifies Simplicius' style of quotation, 281–4. Connotation of 'increase' and 'grow apart' in lines 1–2 and 16–17, 315. The subject of κρατέουσι in line 29, 316. Relation to frr. 20 and 26, 319. Possible use of line 29 by Aristotle, 319–20. Restoration of line 8a from fr. 26, and the schematization of verses in lines 1–13, *323–4*. Whether Love is a 'substance physique', 329. Connotation of τῇι τε φίλα φρονέουσι in line 23, as evidence for the nature of the *daimon*, 329–30. Various names for Love and Strife, 333. Bibliography, 343, 349, 361, 372, 374, 387

20 Order of increasing Love and increasing Strife, 175. A description of the two zoogonies, against Solmsen's interpretation, 183, 187, 189. Relation to frr. 17 and 26, 211 n. 4. Main interpretation, as evidence for the zoogony, *218–29*, 230. Distinction between men and beasts, 232. Exemplifies the quality of Simplicius' exemplar, 277, 278–9. Relation to frr. 17 and 26, 319. Repeated caesurae, 322. Various names for Strife, 333

21 Aristotle's paraphrase of the notion of 'weight' in line 6, 34 n. 7, 35–6. 'In love', line 8, used to illustrate Karsten's interpretation of ἐν τῇι δή, fr. 35. 5, 118. Order of numeration of the elements, 140. The notion of weight in Plutarch's paraphrase, 149. Order of increasing Love and increasing Strife, 175 n. 4. Possible relation to frr. 35 and 71, 184. Relation to fr. 26, 211. Relation to frr. 17, 20 and 26, 224. The order of lines 4 and 5, *226 n. 1*. The reading θέλυμνα, line 6, *266–7*. Whether λαμπρός is a gloss, 276. Exemplifies the quality of Simplicius' exemplar, 277, 279–80, 281 n. 2. In support of the reading λαμπρός, line 3, *285–6*. Line 9 exemplifies Aristotle's style of quotation, 286. Various names for Strife, 333. Bibliography, 347, 374

22 Empedocles' answer to Parmenides, 77. Order of numeration of the elements, 140. Whether Love separates and Strife unifies, 171. Order of increasing Love and increasing Strife, 175 n. 4. Possible significance of πλάζεσθαι as evidence for the zoogony, 226–7. Exemplifies the quality of Simplicius' exemplar, 279. Subtlety in the arrangement of clauses, 292 n. 1. Main interpretation, as part of the analysis of 'like to like', *305–13*. Various names for Love, 333. Bibliography, 385, 398

EMPEDOCLES (*cont.*)

23 The reading γεγά⟨κ⟩ασι, line 10, 109 n. 5. Against Solmsen's interpretation, 189. Relation to fr. 21, 224. Exemplifies the quality of Simplicius' exemplar, 277. Bibliography, 365

24 ἑτέρας ἑτέρῃσι as a stylistic device, 285. Bibliography, 354

25 Exemplifies Plutarch's style of quotation, 152. Bibliography, 378

26 Quotation by Aristotle, 7–9, 19–20. In Simplicius' commentary on Aristotle, 27. Possible influence of line 11 on the later interpretation of continuous movement, *37–8*. Loose connotation of time, 80 n. 1. A guide to the meaning of mortal and immortal in fr. 35, 117. A guide to the connotation of equality in fr. 17, 136. Does not support Millerd's view of the 'fighting' of the elements, 142. Repeated variants on lines 1, 5 and 11, 151. Restoration of line 7 to fr. 17, 168 n. 1. Aristotle's use of fr. 26 does not vitiate his evidence on alternation, 169. Order of increasing Love and increasing Strife, 175. Evidence for men and women in the zoogony under increasing Love, and the position of the fragment in the poem, 209, *210–11*. Connotation of ἄλλοτε δ' αὖ, 223. Relation to frr. 17 and 20, 224–5. Distinction of men and beasts, a guide to the interpretation of fr. 20, 225; a guide to the character of the οὐλοφυῆ, 232. Aristotle's supposed misunderstanding of ἀκίνητοι, *252–61*. Exemplifies the quality of Simplicius' exemplar, 280–1, 281 n. 2. Exemplifies Simplicius' style of quotation, 282–4. Interpretation of lines 1–2 and 7, *314–23*. Restoration of line 7 to fr. 17, 277 n. 10, *323–4*. Bibliography, 382, 393

26a For the distinction of frr. 26a and 27 see pp. 148, *149–54*. Quotation by Plutarch, 32. Order of numeration of the elements, 140. Relation to fr. 17, 168. Confusion of frr. 26a and 27 by Hölscher, 178. Bibliography, cf. 388

27 Proper and improper use of the term Sphere, 4 n. 2. Reason for quotation by Eudemus, 19–20. The implication of rest in μονίη and ἑστήρικται, *20–5*. Quotation by Simplicius, 27. Implication for the duration of the Sphere, 69. Used by Marcus Aurelius of the individual, 96 n. 4. Connotation of κρυφῶι, 127. Order of numeration of the elements, 140. Possible reminiscence in the *Timaeus*, 144. Distinction from fr. 26a, 148, *149–54*. Relation to fr. 17, 168. Confusion of frr. 26a and 27 by Hölscher, 178. Empedocles' answer to Parmenides, 242 n. 1. Derivation of μονίη from Homer, 267. Exemplifies the quality of Simplicius' exemplar, 277. The reading περιγηθέι γαίων, 276, *284–5*. A guide to the explanation of ὑπένερθε γένηται in fr. 26, 320. Various names for Love, 333. Bibliography, 388, 394

27a Possible reminiscence in Plato's *Politicus*, 96. Ascription to

EMPEDOCLES (*cont.*)

Empedocles as a description of the Sphere, 96 n. 4. Relation to fr. 17, 168. Empedocles' answer to Parmenides, 242 n. 1. The limbs need not be the same as those in fr. 30, 274. Bibliography, 359

28 Implication for the duration of the Sphere, 69. Used by Marcus Aurelius of the individual, 96 n. 4. Guide to the interpretation of fr. 17. 19, 139. Possible reminiscence in the *Timaeus*, 144. A repeated variant, 151. Relation to fr. 17, 168. Empedocles' answer to Parmenides, 242 n. 1. Bibliography, 394. Fr. 28. 2 = fr. 27. 4: duplicate references have not always been given

29 Animism, 125. Guide to the interpretation of fr. 17. 19, 139. Possible reminiscence in the *Timaeus*, 144. Repeated variant, 151. Relation to fr. 17, 168

30 Evidence on time, 57, 71, 75. Significance of the oath, 78. Probable origin of Aristotle's 'equal times', *80–5*. Relation with fr. 115 and 30,000 seasons, 88–92. Joined with Aristotle's evidence for the structure of the cycle, 92. Repeated variant, 151. Relation to fr. 17, 168. General significance of the oath and necessity, 248–9. Interpretation especially of line 1, *274–5*. Exemplifies the quality of Simplicius' exemplar, 277. Bibliography, 390

31 Reason for quotation by Eudemus, 19–20. Part of the evidence for rest and movement, *20–5*. Quotation by Simplicius, 27. Evidence for time, 71. Relation to fr. 17, 168. The limbs need not be the same as those in fr. 30, 274–5

35 Misuse of the term κύκλος in line 10, 4 n. 2. Evidence on the movement of the separated elements, 19–20, *25–6*. Lines 14–15 perhaps the origin of an instantaneous Sphere, 56. Evidence for the time of total Strife, 57, *58–9*, 60, 70, 78, 93, 95. Main interpretation with reference especially to lines 3–5 and the place of Love and Strife, *104–23*, cf. 15 n. 1. Significance of the movement of Love and Strife described in lines 12–13, 129 n. 2, 129, *142–3*. Used by Nestle to explain fr. 17. 19, 131. Connotation of 'below', 149. Quotation by Simplicius, as evidence for Simplicius' knowledge of the poem, 151. Used by Hölscher, 167. Relation to fr. 17, 168. Indication that increasing Love was thought of as in the past, 175. Part of Solmsen's argument on the cyclic system, 181–9. Use by Simplicius, 201. Guide to the zoogonical interpretation of fr. 20, 226. Invalidates usual explanation of Aristotle's criticism of the *dine*, 262. Derivation of ζωρός from Homer, 267. θελημά in fr. 21 perhaps fetched from fr. 35, 267. The limbs in line 11 need not be the same as those in fr. 30, 274. γένηται in line 4 is not a gloss, 276, 284. θνητῶν as a guide to the restoration of fr. 26. 4, 280

EMPEDOCLES (*cont.*)

n. 7. λόγου λόγον as a stylistic device, 285. Use of πᾶν, 322. Whether Love is a 'substance physique', 329. Bibliography, 355, 374, 381, 387, 394, 398

37 Context, 147 n. 4. Aristotle's treatment of αἰθήρ as πῦρ, 292. 'Like to like', 304–5. Connotation of αὔξει and probable context, 315

38 Origin of the sun, 50 n. 1. Significance of the order of numeration of the elements, 140. Distinction of air and aether, 292. Line 4 imitated by Lucretius, 297

39 Exemplifies Aristotle's style of quotation, 286

40 Bibliography, 344

42 Bibliography, 348

51 Derivation of ἀνόπαιον from Homer, 267

52 Whether the source of Anatolius' central fire, 121. Subterranean fire, 134, 189, 290

53 Quotation by Simplicius, 150. Quotation by Aristotle, 214. Probably part of the storm of the elements, *269–70*. Aristotle's description of the subject as ἀήρ and as αἰθήρ, 292

54 Quotation by Aristotle, 214. Probably part of the storm of the elements, *269–70*

55 Animism, 125. Reminiscence in Lucretius, 294

56 The sun's rotation a guide to Aetius' account of the origin of the sea, 52 n. 3, 294

57 Quotation by Aristotle, 12–14. Evidence for the zoogony, 196ff., especially 200–1; and the connotation of ἐπλάζοντο and ἐπλανᾶτο, 226–7, cf. 220 n. 2. Exemplifies Simplicius' style of quotation, 282. Exemplifies Aristotle's style of quotation, 286

59 Quotation by Simplicius, and whether one fragment or two, 137. Does not support Millerd's view of the fighting of the elements, 142. Quotation by Simplicius, 150. Precise meaning of lines 2–3, *234–6*. Exemplifies Simplicius' style of quotation, 282. Δαίμονι δαίμων, 285. The identity of the *daimones* in line 1, *325–36*

60 Evidence for the zoogony, 196ff., especially 202, 225. Bibliography, 393

61 Evidence for the zoogony, 196ff., especially 202, 207

62 Evidence for placing the sun's increase of speed, 50. Relevance to the placing of the golden age, 77. Whether the source of Anatolius' central fire, 121. Significance of the juxtaposition of fire and water in line 5, 140. Relevance to the distribution of animals among the elements on the principle of like to like, 194. Whole-natured creatures: their place in the zoogony, 196ff., especially *203–9*; separation into men and women, *209–10*; possible source of confusion in Censorinus, 218; whether they were pangenetic or not, 225 n. 3, 231–4. Exemplifies Aristotle's style of quotation, 286. Part of

EMPEDOCLES (*cont.*)

the process of separation of the elements, 290. 'Like to like' in line 6, 305, 312–13, 315. Bibliography, 374.

63 Evidence for placing the sun's increase of speed, 50. Whether the whole-natured creatures were pangenetic, 231 n. 1

64 Evidence for placing the sun's increase of speed, 50. Distinction between men and beasts, 233

65 Evidence for placing the sun's increase of speed, 50. Animism, 125 n. 3. Relevance to the zoogony, 205 n. 5

66 Evidence for placing the sun's increase of speed, 50. Animism, 125 n. 3

67 Evidence for placing the sun's increase of speed, 50. Relevance to the zoogony, 205 n. 5. Possible reminiscence in the *Symposium*, 227–8. ἀνδρωδέστεροι ἄνδρες whether the true reading and as a stylistic device, 285. Bibliography, 373, 396

68–70 Evidence for placing the sun's increase of speed, 50

71 The sun's origin, 50 n. 1. γεγάασι, 109 n. 5. The order of numeration of the elements, 140. Quotation by Simplicius, 151. Part of Solmsen's argument against two worlds, 181–6. Reading τοῖ' ὅσα, 184 n. 3. Distinction of air and aether, 292

73 Quotation by Simplicius, 151. Various names for Love, 333. Bibliography, 374

74 Context, 190–1

75 Quotation by Simplicius, 150–1. Empedocles' conception of chance, 214

76 Illustrates Plutarch's familiarity with the poem, 35–6; and his style of quotation, 152. Movement of the elements under increasing Love, 263

79 and 82 Animism, 125

84 Lines 5 and 11 repeated variants, 151. Derivation of δίαντα from Homer, 267. Repeated caesurae, 322. Bibliography, 343, 378, 392

85 Quotation by Simplicius, 150. Scansion of ἡ δὲ φλόξ, 310

86 and 87 Quotation by Simplicius, 151

88 Derivation of ὄψ from Homer, 267

90 Possibly related to Simplicius' account of the zoogony, 213. 'Like to like', 303–5. Bibliography, 342

95 Quotation by Simplicius, 151

96 Significance of the juxtaposition of fire and water, 140. Part of Solmsen's argument against two worlds, 181–9. Evidence for the zoogony, 201, 204 n. 5, 213. Exemplifies the quality of Simplicius' exemplar, 277, 279. Hephaestus not an indication of the meaning of δαίμων in fr. 59. 1, 327. Love as the proportion and a part but not an ingredient of bone, 336 n. 1

98 Possible connotation for the notion of cosmic breath, 125. Significance of the juxtaposition of fire and water, 140.

EMPEDOCLES (*cont.*)

Quotation by Simplicius, 150. Part of Solmsen's argument against two worlds, 181–9. Evidence for the zoogony, 201, 213. Exemplifies the quality of Simplicius' exemplar, 277. Distinction of air and aether, 292. Hephaestus not an indication of the meaning of *daimon* in fr. 59. 1, 327. Relation of a cognitive blood-soul to the *daimon*, 335 n. 1. Bibliography, 347

99 Animism, 125

100 Possible change of mood, and the omission of ἄν, as parallels for fr. 35, 112. Possibility of a world breath, 124–5. Distinction of ἀήρ and αἰθήρ, *291–2*. Bibliography, 370, 371, 390, 391, 392, 393

102 Metre, 109 n. 5

103 and 104 Quotation by Simplicius, 150

105 Relation of a cognitive blood-soul with the *daimon*, 330, 335 n. 1. Bibliography, 380

106 Bibliography, 380

107 Metre, 109 n. 5

108 Bibliography, 380

109 Exemplifies Aristotle's style of quotation, 286. Distinction of air and aether, 292. 'Like to like', 303–5. Relation to *daimon*, 329–30, 335 n. 1, 335. Various names for Love, 333. Bibliography, 397

110 Animism, 125. Line 8 a repeated variant, 151. 'Like to like', 305. Connotation of αὔξει, 315. Bibliography, 365, 380, 387, 388, 392

111 γεγᾶσι, 109 n. 5. Bibliography, 342, 388, 391

112 Empedocles' divinization, 90, 97. Derivation of θαλείοις from Homer, 267

115 Relation with fr. 30, 75 n. 1, 82. 30,000 seasons, *85–92*. Aetius' all-element animal probably derived from the *daimon* in this fragment, *194–5*. Quotation by Philoponus, 203 n. 4. General significance of the oath and necessity, 248–9. The identity of the *daimones*, *325–36*. Bibliography, 374, 390, 395, 397

117 Quotation by Philoponus, 203 n. 4

121 Slight echo in fr. 20, 211 n. 4. Whether evidence for the interpretation of fr. 20, 220 n. 1. Cause of corruption in fr. 20, 280–1

122 Speed and slowness, 51. Movement and Rest, 103 n. 1. Repeated caesurae, 322. Evidence for the nature of the *daimones*, 331

123 Speed and Slowness, 51. Movement and Rest, 103 n. 1. Repeated caesurae, 322. Bibliography, 388

126 The different functions of *daimones*, 334

127 ὀρειλεχέεσσιν restored to fr. 20, 278–9

128 Evidence for the golden age, 76–7. Bibliography, 363

129 Evidence for the golden age, 76 n. 2. Relation to the *daimon*, 335 n. 1. Bibliography, 394

EMPEDOCLES (*cont.*)
130 Evidence for the golden age, 76. Reminiscence in Plato's *Politicus*, 96 n. 3
131 μελέτας ⟨μέλε τοι⟩ as a possible stylistic device, 285. Bibliography, 398
133 Bibliography, 371
134 Animism, 125. Possible reminiscence in the *Timaeus*, 144. Line 3 a repeated variant, 151. Bibliography, 373
135 Possible connotation of ἄπλετον, 136. Possible reminiscence in Plato's *Timaeus*, 145 n. 2. Bibliography, 393.
137 Bibliography, 388
141 Quoted by Gellius, as part of his association of Strife with marriage, 210
142 Bibliography, 355
146 Correlation with the cosmic cycle, 90
147 General account of the cycle, 79. Correlation with the wanderings of the *daimon*, 89. Empedocles' relation with Christian eschatology, 100 n. 3. Related to evidence for the nature of the *daimon*, 334. Bibliography, 396
150 Possibly related to Simplicius' account of men and women in the zoogony under increasing Love, 213
154 and 154a Bibliography, 360
154b Bibliography, 367

Repeated verses are listed on p. 151. Individual references have not been included in the *Index locorum*.

ENNIUS
Fragmenta
ed. J. Vahlen, 2nd edn, Lipsiae 1903.
ed. L. Valmaggi, Torino 1900.
Annales 521–2 Vahlen = fr. 357 Valmaggi Bibliography, 372

[EPHRAEM SYRUS][1]
ed. G. Assemani, 3 vols., Romae 1732–46.
De virtute ad novitium monachum, adhortatio 3
vol. 1 p. 209B 23 n. 3
Consilium de vita spirituali ad monachum novitium, caput 28
vol. 1 p. 264B 23 n. 3
Beatitudines
55
vol. 1 p. 290C 23 n. 3
De Juliano asceta
vol. 3 p. 255F 23 n. 3

ETYMOLOGICUM MAGNUM
ed. T. Gaisford, Oxonii 1848.
s.v. προθέλυμνος 266

[1] In marking the works attributed to Ephraem as questionable or spurious I am following the opinion of D. Hemmerdinger-Iliadou in his article 'Éphrem (versions)' in the *Dictionnaire de spiritualité* etc., fondé par M. Viller *et alii*, tome 4, première partie, fasc. 26–7 (Paris, 1959), coll. 805, 808 and 811.

EUDEMUS
Fragmenta
ed. F. Wehrli, in the series *Die Schule des Aristoteles, Texte und Kommentar*, Heft 8, Basel 1955.

54a 31
88 126 n. 5
110 (= Simpl. *Phys.* 1183. 28ff.) Opinion of rest and movement in Empedocles, 6, 19–20, 21, 22, *26–31*. Quotation of fr. 27, as distinct from fr. 26a, *149–54*
111 31. 78 n. 1

EURIPIDES
Fragmenta
ed. A. Nauck, 2nd edn, Lipsiae 1889.

415 317

EUSEBIUS
Praeparatio evangelica
ed. K. Mras, *GCS* 1954–6.

1. 8. 3 40 n. 1
1. 8. 10 21. 50 n. 1. Order of separation of the elements, 287ff. Beginning of rotation, 296–9
3. 1. 6–7 272
11. 32ff. 100 n. 4
15. 14. 2 71 n. 1

FAVORINUS *see* PHAVORINUS

GALENUS
ed. K. G. Kühn, 20 vols., Lipsiae 1821–33
De simplicium medicamentorum temperamentis ac facultatibus, liber 2.
vol. 11 p. 461 226 n. 1. 285

[GALENUS]
Historia philosopha
35, vol. 19 p. 336 (= Diels, *Doxographi graeci*, p. 645, sect. 124) 192 n. 2

GELLIUS
Noctes atticae
ed. M. Hertz, 2 vols., Berolini 1883–5.
ed. K. Hosius, *BT* 1903.

4. 11. 9–10 210

HERACLITUS
Fragmenta

30 238
119 332

HERMETICA
ed. W. Scott, Oxford 1924–36.
edd. A. D. Nock et A.-J. Festugière, 4 vols., Budé 1945–54. The primary numeration follows the Budé edition.
libellus 12. 20 = 234. 28–236. 3 Scott 192 n. 2. 194 n. 6

HERMETICA (*cont.*)
excerptum 24. 16–18 = 504. 20–506. 15 Scott (from Stob. *Ecl.* 1. 49. 45) 192 n. 2. 194. n. 6

HERMIAS ALEXANDRINUS
in Platonis Phaedrum Scholia
ed. P. Couvreur, in the series *Bibliothèque de l'École des Hautes Études*, fasc. 133, Paris 1901.
p. 117. 24 39 n. 2

HERMIAS PHILOSOPHUS
Irrisio gentilium philosophorum
ed. H. Diels, *Doxographi graeci*, Berolini 1879.
10 40 n. 1

HERMIPPUS
De astrologia
edd. W. Kroll et P. Viereck, *BT* 1895.
1. 64–8 192 n. 1
2. 2–13 Distribution of animals among the elements, 192 n. 1. Fire and water as male and female elements in the zoogony, 205 n. 5. Wombs, perhaps taken from Empedocles, 215; apparently pangenetic, 232. Storm of the elements presented as disordered movement in general, 272–3. Manner of separation of the elements, 294–6

HERODIANUS TECHNICUS
ed. A. Lentz, Lipsiae 1867–70. This serves as vols. 3–4 in the series *Grammatici Graeci*, 8 vols., Lipsiae 1867–1910.
1. 225. 1–2 20 n. 1
2. 16. 17–29 109 n. 5
2. 645. 33 310 n. 1

HERODORUS HERACLEOTES
Fragmenta
ed. F. Jacoby, *Die Fragmente der griechischen Historiker*, Berlin 1923 ff.
21 = 1. 219. 22 Jacoby 52

HERODOTUS
ed. K. Hude, 3rd edn, *OCT* [1926]
2. 4 68
2. 123 88
8. 12 85
8. 22.3 112 n. 3

HESIODUS
Opera et dies
ed. A. Rzach, Lipsiae 1902 (editio maior); 3rd edn, *BT* 1913 (editio minor).
ed. A. Colonna, in the series *Testi e Documenti per lo Studio dell'Antichità*, no. 1, Istituto Editoriale Cisalpino, Milano e Varese 1959.
108 109 n. 5
118–19 267
252 87

HESIODUS (*cont.*)
553 310
Theogonia
ed. M. L. West, Clarendon Press, Oxford 1966.
108–15 322
116 42
120–2 32
242–8 322
254 310
524 132
793–806 88
830–5 223
872–80 322
Fragmenta
ed. A. Rzach, Lipsiae 1902 (editio maior); 3rd edn, *BT* 1913 (editio minor).
14 223
HESYCHIUS ALEXANDRINUS
Lexicon
ed. K. Latte, Hauniae 1953–66.
s.v. γεγακώς 109 n. 5
s.v. ἐνέρτατον 114–15
s.v. θέλυμνον 266
s.v. θεμέλια 266 n. 2
s.v. θεμελιωθέντα 266 n. 2
s.v. μάθας 277 n. 2
s.v. νέρτατα 114–15
HIPPOCRATES
ed. E. Littré, 10 vols., Paris 1839–61.
De victu
1. 3 = vol. 6 p. 472 317
1. 4. = vol. 6 pp. 474–6 165 n. 3
1. 28–9 = vol. 6 pp. 500–4 228
Cf. Bibliography, 356, 394, 395
HIPPOLYTUS
Refutatio omnium haeresium
ed. P. Wendland, *GCS* 1916.
1. 3. 1 90. 96 n. 3. Cf. 97 n. 3
1. 4 210 n. 3
1. 6. 1 41. 96
1. 6. 2 40 n. 1
1. 7. 2 40 n. 1
1. 7. 4 298 n. 4
1. 8. 3 298 n. 4
1. 8. 12 204 n. 3
5. 20. 6 33
6. 11 286 n. 12
7. 29 General interpretation of the work of Love and Strife, 100. Love and Strife as efficient causes, 103 n. 2. Reading of fr. 29. 3, 139 n. 2. On sex, 209–10. On necessity, 249 n. 2.

HIPPOLYTUS (*cont.*)

The 'birth' and 'death' of the elements under the influence of Love and Strife, 317 n. 2

7. 30. 3–4 209–10
10. 7. 5 130 n. 1
10. 33. 5–6 192 n. 2

HOMERUS

Ilias

ed. T. W. Allen, Oxonii 1931.

2. 71 164
2. 400 322 n. 9
3. 357 109 n. 5
4. 57 310
4. 141 ff. 110–12
4. 155 109 n. 5
4. 325 109 n. 5
4. 456 326 n. 1
5. 730 310
8. 500 310
10. 226 241 n. 3
11. 478 112 n. 3
11. 686 310
12. 212 310
12. 294 132
13. 286 326
15. 363 112 n. 3
15. 680 112 n. 3
16. 297 ff. 110 n. 3
16. 441 310
18. 158–60 221
18. 207 ff. 110 n. 3
18. 470–3 222
18. 599–602 222
21. 179 310
21. 469 326
21. 522 ff. 110 n. 3
22. 169–72 222
22. 179 310
22. 257 24
23. 590 241 n. 3
23. 661 24
24. 9–11 222
24. 511–12 222

Odyssea

ed. T. W. Allen, *OCT* 2nd edn [1916].

2. 322 310
4. 100–3 222
5. 317 326 n. 1
5. 330–2 222

HOMERUS (*cont.*)
10. 508ff. 238 n. 1
11. 158ff. 238 n. 1
11. 222 164
11. 302–4 222
13. 363 310
14. 385 310
16. 207–10 222
16. 402 310
17. 218 302
17. 564 310
20. 86 112 n. 3
21. 230 310
22. 117 310
22. 232 310
22. 373 310
22. 395 310
23. 267–73 322
Hymni
edd. T. W. Allen, W. R. Halliday, E. E. Sikes, 2nd edn, Clarendon Press, Oxford 1936.
ed. J. Humbert, Budé 1936.
2 *To Demeter*
113 310
3 *To Apollo*
142 221 n. 1
19 *To Pan*
8–11 222
ap. Herodianum
2. 16. 17–29 Lentz 109 n. 5
For scholia on Homer *see* SCHOLIA.

HORATIUS
ed. F. Klingner, *BT* 3rd edn, 1959.
Ars poetica
46–72 Bibliography, 396
Epistolae
1. 12. 19 Bibliography, 396
Sermones
2. 7. 85–7 96 n. 4

[HYGINUS]
Astronomica poetica
ed. B. Bunte, Lipsiae 1875.
2. 15, p. 53. 19–21 86
Fabulae
ed. H. J. Rose, Lugduni Batavorum [1934]
54. 3 86 n. 2
144. 2 86 n. 2

IAMBLICHUS
De mysteriis
ed. G. Parthey, Berolini 1857.
ed. E. des Places, Budé 1966.
1. 8 *ad init.* 192 n. 2
1. 9 194 n. 6

[IAMBLICHUS]
Theologoumena arithmeticae
ed. V. de Falco, *BT* 1922.
p. 6. 11–20 121 n. 2

IOANNES APOSTOLUS
Apocalypsis
21. 1 100 n. 1

IOANNES CLIMACUS
Scala Paradisi
ed. J.-P. Migne, *PG* vol. 88, 1860.
1112D 23 n. 3

IOANNES PHILOPONUS *see* PHILOPONUS

ISAIAS PROPHETA
65. 17 100 n. 1
66. 22 100 n. 1

ISIDORUS
Etymologiae
ed. W. M. Lindsay, *OCT* 1911.
13. 3. 3 192 n. 2

[LAMPRIAS]
Catalogue of Plutarch's works
ed. M. Treu, *Der sogenannte Lampriascatalog der Plutarchschriften*, Waldenburg in Schlesien 1873.
43 33

LUCRETIUS
De rerum natura
ed. C. Bailey, Clarendon Press, Oxford 1947.
1. 9 154
1. 144 154
1. 345 44
1. 421 44
1. 428 44
1. 635–711 270
1. 660–2 44
1. 712–13 270
1. 714–33 270
1. 759–62 Storm of the elements, *270–1*. 316
1. 1114–17 Bibliography, 392
2. 148 154

LUCRETIUS (*cont.*)
2. 573–6 142. 317
2. 806 154
3. 22 154
3. 753 280 n. 7
4. 202 154
5. 103 Bibliography, 371
5. 281 154
5. 432–42 120 n. 2. Conflation of Empedocles' descriptions of the Sphere and total Strife, *153–4*. Storm of the elements, *270–1*
5. 443–8 Manner of separation of the elements, *293–4*
5. 457–9 293
5. 467–70 297
5. 483–8 293–4. 296
5. 492–4 295 n. 3
5. 495–508 293
5. 519–21 297–8
5. 564 154
5. 570 154
5. 657 154
5. 767 154
5. 778 154
5. 783 ff. 233 n. 7
5. 805–15 205 n. 5. 215 n. 3. 232 n. 1
5. 837–48 215–16
5. 878–924 215–16

MACROBIUS
in somnium Scipionis
ed. L. Janus, Quedlinburgi et Lipsiae 1848–52.
ed. J. Willis, *BT* 1963.
1. 22. 4 115

MANILIUS
Astronomica
ed. A. E. Housman, 2nd edn by A. S. F. Gow, Cambridge 1937.
1. 170 115

MAXIMUS PHILOSOPHUS
περὶ καταρχῶν
ed. A. Ludwich, *BT* 1877
71 23 n. 3

MELISSUS
Fragmenta
3 241
9 241

MENESTOR SYBARITANUS
ap. Theophr. *De caus. pl.*
1. 21. 6 193 n. 1

MICHAEL EPHESIUS *see* [PHILOPONUS] *De generatione animalium.*

NICOLAUS DAMASCENUS *see* [ARISTOTELES] *De plantis.*

OECUMENIUS
Commentaria in epistolam 2 s. Petri
ed. J.-P. Migne, *PG* vol. 119, 1864.
caput 4, 609c 100 n. 3

ORPHICORUM FRAGMENTA
ed. O. Kern, Berolini 1922.
115 139
168 Bibliography, 352
229 126 n. 4

OVIDIUS
Metamorphoses
ed. H. Magnus, Berolini 1914.
ed. G. Lafaye, Budé 1928–30.
1. 12–13 138
1. 34–5 139
1. 72–5 192 n. 2
1. 76ff. 194 n. 6
Cf. Bibliography, 358.

OXYRHYNCHUS PAPYRI
edd. B. P. Grenfell et A. S. Hunt, London 1898ff.
vol. 7 (1910), p. 132 39 n. 2

PARMENIDES
Fragmenta
7. 3–8. 1 246
8. 4 44
8. 5 239 n. 1
8. 9–10 74–5. 243
8. 26 44
8. 29–30 44
8. 36–41 44. 77
8. 43 239. 241
8. 44 138
8. 49 139
8. 57 136 n. 1
12 32. 121 n. 5
13 32

PETRUS APOSTOLUS
Epistolae
2. 3. 13 100 n. 1

PHAVORINUS
Lexicon
Published: [Rome] 1523, Basileae 1538, Venetiis n.d. [1712].
s.v. ἐθελυμ(ν)οί 266 n. 5
s.v. θέλεμνον 266 n. 2

PHAVORINUS (*cont.*)
s.v. θεμειλωθέντα 266 n. 2
s.v. θέμεμα 266 n. 2
s.v. προθέλυμνα 266 n. 4

PHERECYDES
Fragmenta
1 74

PHILO JUDAEUS
edd. L. Cohn et P. Wendland, 6 vols., Berolini 1896–1915.
De aeternitate mundi
C-W 6
45–6 192 n. 2
Quod deterius potiori insidiari soleat
C-W 1
151–4 192 n. 2. 194 n. 4
De gigantibus
C-W 2
7–11 192 n. 2
De opificio mundi
C-W 1
62–6 192 n. 2
84 192 n. 2
145–7 194 n. 6
De plantatione
C-W 2
12 192 n. 2
De providentia
ed. J. B. Aucher, Venetiis 1822.
2, pp. 86–7 50 n. 1. 52 n. 3. 183 n. 1. The manner of separation of the elements, 287ff. 294
De somniis
C-W 3
1. 135 192 n. 2

PHILODEMUS
De diis, liber 3
ed. H. Diels, *Abhandlungen der Königlich Preussischen Akademie der Wissenschaften zu Berlin, Philosophisch-historische Klasse*, 1916 no. 4.
p. 26: col. 8. 17–22 192 n. 2

PHILOLAUS
ap. Aetium
2. 30. 1 52

PHILOPONUS
De aeternitate mundi contra Proclum
ed. H. Rabe, *BT* 1899.
267. 24 39 n. 2
268. 4 39 n. 2
611. 18–24 14 n. 2

PHILOPONUS (*cont.*)
De anima
ed. M. Hayduck, *CAG* vol. 15, 1897.
73. 9–74. 29 100–1
140. 7–8 203 n. 4
486. 13–17 203 n. 4

[PHILOPONUS] = MICHAEL EPHESIUS
De generatione animalium
ed. M. Hayduck, *CAG* vol. 14 pars 3, 1903.
28. 9–14 203 n. 1

PHILOPONUS
De generatione et corruptione
ed. H. Vitelli, *CAG* vol. 14 pars 2, 1897.
11. 21–3 103 n. 2
17. 9–11 52 n. 1. 226 n. 1. 285 n. 8
19. 6–9 320
268. 8–13 38 n. 1
Meteorologica
ed. M. Hayduck, *CAG* vol. 14 pars 1, 1901.
25. 7 136
Physica
ed. H. Vitelli, *CAG* vols. 16–17, 1887–8.
24. 3–22 100–1. 203 n. 4
261. 17–25 269–70
314. 7–315. 6 203. 212–13
320. 6–9 203. Misunderstanding of the zoogony, especially *207–9*
Excerpta codicis Parisiensis in librum 8
823. 10–14 False understanding of rest and movement, *30*

PINDARUS
Olympia
ed. A. Turyn, B. Blackwell, Oxonii 1948.
ed. B. Snell, *BT* 4th edn 1964.
2. 68 ff. 87–8
2. 70 123 n. 2
6. 49 109 n. 5
Fragmenta
ed. A. Turyn, B. Blackwell, Oxonii 1948.
B. Snell, *BT* 3rd edn 1964.
The numeration given is that of Snell.
131b 332
133 87–8

PLATO
ed. J. Burnet, 5 vols., *OCT* 1900–7; vols. 1–2 [2nd edn] 1905–10: except where other editions are instanced.
Critias
121C 122–3

[PLATO]
Epinomis
ed. F. Novotný, Pragae 1960.
981B–985E 192 n. 1

PLATO
Gorgias
ed. E. R. Dodds, Clarendon Press, Oxford 1959.
493A Bibliography, 355
Leges
891C 41
893E 165 n. 3
895A On precosmic movement or rest, *39–43*
Lysis
214A–D 302
Menexenus
238A 125 n. 2
Meno
ed. R. S. Bluck, Cambridge University Press, Cambridge 1961.
76C–E Bibliography, 351, 379, 394
Parmenides
156D–E 58
Phaedo
ed. J. Burnet, Clarendon Press, Oxford 1911
70A 164
72A11–D5 39. 43 n. 1
99B 120 n. 1
107D–E 88 n. 2. 256 n. 2. 332. 334
114C 97 n. 2
117C 256 n. 2
Phaedrus
245D6–E2 39
247A 123
248C3–5 97 n. 2
248E–249B 88. 90–2
249D 256 n. 2
257A 88. 91–2
cf. OXYRHYNCHUS PAPYRI
Politicus
269C–275A Reference in Plutarch's *De facie*, 32. 48. Correlation of the time of cosmic change and the sum of incarnations, 88 n. 2, *90–2*. Equivalent of total Strife, *94–5*, 98. Absence of a direct equivalent for the Sphere, *96–8*. Location of the περιωπή, *122–3*. Influence on Aristotle of Plato's parody of reversed world periods, 126. 144. Denial of an evil god, 145. 172. As evidence for alternation, 177. Storm of the elements, 271
Res publica
588C 321
615A 88. 91–2

PLATO (*cont.*)
617D–E 332
620D–E 332
Sophistes
242D–243A Reproduces the major alternation, 69, *93–4*. Implicit denial of an evil god, 95. Comparison with the later Platonizing interpretation of Empedocles, 101. Implicit denial of an evil god, 145. Possible influence on Aristotle, 172 n. 1. Evidence for alternation, 177–8
248E ff. 247
249–50 38
Symposium
ed. R. G. Bury, 2nd edn, Heffer, Cambridge 1932.
183E 164
189D–193D Imitation of Empedocles' zoogony in Aristophanes' speech, *227–9*
196A 129 n. 2
205D 10–E 229
211A 240
212C 4–6 229 n. 1
Theaetetus
152E 39
176A 256 n. 2
Timaeus
31B 144 n. 5
32B Bibliography, 386
32C–34B 22–3. The position of the world soul outside the elements, as a possible criticism of Empedocles, *144–5*. Possible reminiscence of Empedocles' ἀργὴς ὕλη, 145 n. 3
36E The position of the world soul outside the elements, as a possible criticism of Empedocles, *145*
39E–40A 192 n. 2. 232
43A–44C 271
49B 7–C 7 317 n. 2
52B 240
52D–53B 12–14. 32. 39 n. 1. 273
57C 39 n. 1
57E 38–9
58D–E 39 n. 1
62B 1–2 39 n. 1
62C–64A 35. 298
69C 2 232
90A–D 332

PLOTINUS
edd. F. Creuzer et G. H. Moser, Oxonii 1835.
6. 7. 12 (vol. 2, pp. 1290–1) 192 n. 2

PLUTARCHUS
Quomodo adulator ab amico internoscatur
ed. W. R. Paton, *BT* vol. 1, 1925.
63D 136 n. 1
De amicorum multitudine
ed. W. R. Paton, *BT* vol. 1, 1925.
93B 152 n. 1
De animae procreatione in Timaeo
ed. K. Hubert, additamentum ad editionem correctiorem collegit H. Drexler, *BT* vol. 6 fasc. 1, 1959.
1926B 249 n. 2
Adversus Colotem
ed. M. Pohlenz, editio altera, quam curavit addendisque instruxit R. Westman, *BT* vol. 6 fasc. 2, 1959.
1111F 285 n. 13
1112A 165 n. 4
1123B 202 n. 1. 215 n. 2
De daedalis Plataeensibus
ap. Eus. *Praep. evang.* 3. 1. 6–7 = G. Bernadakis, *BT* vol. 7, 1896, pp. 43–8. 272
De defectu oraculorum
ed. W. Sieveking, *BT* vol. 3, 1929.
410B–411D 54 n. 3
De esu carnium
ed. K. Hubert, additamentum ad editionem correctiorem collegit H. Drexler, *BT* vol. 6 fasc. 1, 1959.
993C–E The sun's movement as part of the storm of the elements, 49–50, 54 n. 3. The storm of the elements, 271–2. Order of separation of the elements, 295–6. Bibliography, 357
De exilio
ed. W. Sieveking, *BT* vol. 3, 1929.
edd. P. H. de Lacy et B. Einarson, *LCL* 1959.
607C–E 210 n. 3. 330–6
De facie quae in orbe lunae apparet
ed. M. Pohlenz, editio altera, addenda adiecit H. Drexler, *BT* vol. 5 fasc. 3, 1960.
ed. H. Cherniss, *LCL* 1957.
922C 52 n. 1
925B 134
926C–927A Movement of the fully separated elements, 6, *31–6*. Arrangement of the fully separated elements, *147–9*. Quotation of fr. 26a as distinct from fr. 27, *149–54*. Evidence for the cyclic system, 157–8; as a supplement to fr. 17, 168; and misunderstood by Hölscher, 178, and Solmsen, 188–9. Giants, 228 n. 4
927F 35–6. 152 n. 3
De Iside et Osiride
ed. W. Sieveking, *BT* vol. 2, 1935.
370D–E 44 n. 1. 51. 333

PLUTARCHUS (*cont.*)
Maxime cum principibus philosopho esse disserendum
ed. K. Hubert, editio altera correctior, addenda adiecit H. Drexler, *BT* vol. 5 fasc. 1, 1960.
777C 96 n. 4
Non posse suaviter vivi secundum Epicurum
ed. M. Pohlenz, editio altera, quam curavit addendisque instruxit R. Westman, *BT* vol. 6 fasc. 2, 1959.
1103F 152 n. 2
De primo frigido
ed. K. Hubert, editio altera, addenda adiecit H. Drexler, *BT* vol. 5 fasc. 3, 1960.
949F 226 n. 1. 285
953E 189 n. 2
955B–C 35
Quaestiones convivales
ed. K. Hubert, *BT* vol. 4, 1938.
618B 35–6. 152 n. 3
685F 191
Quaestiones naturales (vel *Aetia physica*)
ed. K. Hubert, editio altera, addenda adiecit H. Drexler, *BT* vol. 5 fasc. 3, 1960.
ed. F. H. Sandbach, *LCL* 1965.
917A 213 n. 4
917C 233
De sollertia animalium
ed. K. Hubert, additamentum ad editionem correctiorem collegit H. Drexler, *BT* vol. 6 fasc. 1, 1959.
964D–E 210

[PLUTARCHUS]
Stromateis
ap. Eus. *Praep. Evang.* 1. 8. 1–12
ed. H. Diels, *Doxographi graeci*, Berolini 1879.
ed. K. Mras, *GCS* 1954–6.
3 40 n. 1
10 21. 287ff. 296–9

PLUTARCHUS
De tranquillitate animi
ed. M. Pohlenz, *BT* vol. 3, 1929.
474B–C 51 n. 1. 331–6

[PLUTARCHUS]
De vita et poesi Homeri
ed. G. N. Bernadakis, *BT* vol. 7, 1896.
99 137 n. 1. 281 n. 6

PORPHYRIUS
ed. A. Nauck, *BT* 2nd edn, 1886.
De abstinentia
3. 14 192 n. 2
De antro nympharum
8, p. 61. 19–21 334

PORPHYRIUS (*cont.*)
Vita Pythagorae
18–19 126 n. 5
38 44 n. 1
ap. Stob. *Ecl.*
1. 49. 60 334
On the φιλόσοφος ἱστορία, cf. Bibliography, 381

PROCLUS
in Parmenidem
ed. V. Cousin, Parisiis 1864.
col. 849. 13–15 228 n. 4
in Timaeum
ed. E. Diehl, 3 vols., *BT* 1903–6.
1. 351. 10 152 n. 1
2. 69. 22–7 23–4. 100. 277 n. 6. 284
2. 70. 1–3 23–4
2. 73. 2–26 24 n. 1
2. 298. 10 286 n. 12
3. 141. 11–13 123 nn. 2 and 3
3. 143. 24–7 123 n. 3
3. 314. 23–315. 16 24 n. 1

SCHAHRASTANI
Cf. Bibliography, 381.

SCHOLIA
in Homeri Iliadem
vols. 1–4 ed. W. Dindorf, Oxonii 1875–7; vols. 5–6 ed. E. Maass, Oxonii 1887–8.
vol. 1, *Il.* 5. 898 114 n. 6
vol. 4, *Il.* 13. 130 266
vol. 5, *Il.* 5. 898 114 n. 6
in Platonis Gorgiam
ed. W. C. Greene, Haverfordiae 1938.
498E 152 n. 2
in Tzetzis Allegorias Iliadis
ed. J. Boissonade, Lutetiae 1851.
ed. J. A. Cramer, *Anecdota Graeca*, vol. 3, Oxonii 1836.
4. 33 (p. 101 Boissonade, p. 379. 32 Cramer) 286 n. 8
For Hermias' scholia on Plato's *Phaedrus* see HERMIAS ALEXANDRINUS.
For Tzetzes' own scholia on Hesiod and Lycophron see TZETZES.

SENECA
Quaestiones naturales
ed. A. Gercke, *BT* 1907.
ed. P. Oltramare, Budé 1929.
3. 24. 1–3 189 n. 2. 290 n. 1

SEXTUS EMPIRICUS
Adversus mathematicos
libros 7–11 (= *Adversus dogmaticos* 1–5) ed. H. Mutschmann, *BT* vol. 2, 1914.

SEXTUS EMPIRICUS (*cont.*)
libros 1–6 ed. H. Mutschmann, iterum edidit J. Mau, *BT* vol. 3, 1961.

1. 303	286
7. 92	286
7. 121	286
7. 125	152 n. 1
9. 10	130 n. 1. 136 n. 1
9. 86–7	192 n. 2. 194 n. 4
10. 317	130 n. 1

SIMPLICIUS
Categoriae
ed. C. Kalbfleisch, *CAG* vol. 8, 1907.

83. 24	278 n. 8
148. 10	115
277. 9	278 n. 8
337. 2	282
424. 27	278 n. 8
426. 8	278 n. 8

De anima
ed. M. Hayduck, *CAG* vol. 11, 1882.

250. 23	286 n. 7

De caelo
ed. I. L. Heiberg, *CAG* vol. 7, 1894.

139. 27–140. 25	28 n. 10
140. 25–141. 9	28 n. 2. 137 n. 2. 150 n. 2. 277 n. 10. 281 n. 5. 282. 323 n. 3
141. 9–11	28 n. 9
196. 17–19	278 n. 8
293. 20–3	185 n. 1
293. 25	150 n. 2. 277 n. 10. 282. 323 n. 3
293. 26	137 n. 1. 281 n. 4
294. 10–13	28 n. 2
295. 9–11	44 n. 3
295. 26–9	100 n. 2
296. 6–30	28 n. 10
308. 2–4	100
512. 9–12	120–1
512. 12–14	123 n. 2
528–30	181
528. 3–14	262
528. 14–24	262–3. 288 ff.
528. 24–9	263 n. 2
528. 29–530. 11	28 n. 7. 100 n. 5. 100 n. 9. 112 n. 6. 151. 184. 184 n. 5. 185 n. 3. 224 n. 1. 281. 284 n. 1
530. 12–22	28 n. 4. 28 n. 10. 36. 150 n. 2. 262. 281 n. 4. 283
530. 22–6	28 n. 5. 28 n. 8. 28 n. 10. 185 n. 3. 262
531. 8–9	263
586. 6	13
586. 12	282 n. 3. 286 n. 8
586. 25–587. 26	13 n. 1. 13 n. 2. 112 n. 6. 118 n. 3. 137 n. 3. Evidence for the

SIMPLICIUS (*cont.*)

zoogony, 173 n. 5, 200–1, 201 n. 6, 201, 226, 234, 235 n. 3. 282 n. 4. 286 n. 8. Interpretation of fr. 59. 1, *326–7*

590. 19–591. 7 28 n. 2. 175. 176. 201. 277 n. 6. 284 n. 2

Physica

ed. H. Diels, *CAG* vols. 9–10, 1882–95.

22. 17 29 n. 3. 40
24. 13 40
25. 23–4 103 n. 2
25. 24–6 37 n. 2
25. 29 150 n. 2. 283
25. 30 137 n. 2. 277 n. 1. 281 n. 5
25. 31 137. 278
26. 2 136 n. 1. 278 n. 4
26. 3 130 n. 1. 278 n. 6
31. 18–34. 12 28 n. 2. 100–1. 184 n. 5
31. 31–32. 1 100–1
32. 10 277 n. 9
32. 11 150. 181
32. 14 284 n. 1
32. 15 112 n. 6
33. 6–7 280. 281 n. 2
33. 8 285 n. 4
33. 11 266. 280 n. 3. 280 n. 4
33. 14 286 n. 2
33. 18 150. 211
33. 19 282
33. 22 280 n. 6
33. 25 321 n. 2
34. 4–12 28 n. 3. 100 n. 10
34. 14–16 121 n. 5
34. 18–35. 21 99 n. 2
39. 20–1 281
42. 8–11 40. 44 n. 3
42. 16–26 40
146. 22 139 n. 1
154. 29–31 78 n. 1
155. 1–20 35
157. 5–24 99 n. 2
157. 27 150
158. 1 277 n. 10. 282. 323 n. 3
158. 3–5 164. 278 n. 1
158. 7 150 n. 2
158. 8 137 n. 2. 281 n. 5
158. 13 277 n. 2
158. 17 136 n. 1. 278 n. 4
158. 18 130 n. 1. 278 n. 6
158. 20 281 n. 7
158. 21 281 n. 3
159. 13 277 n. 4

SIMPLICIUS (*cont.*)

159. 15 285 n. 4
159. 18 266. 280 n. 2. 280 n. 5
159. 21 286 n. 2
159. 26 279 n. 2
160. 2–6 277 n. 5
160. 12–14 100 n. 9. 280
160. 20 283
160. 22–161. 13 28 n. 2. 279 n. 4. 279 n. 6. 279 n. 7
161. 14–15 141. 150. 211 n. 4
161. 18–20 165 n. 4
180. 25–30 165 n. 4
188. 26 281 n. 8
235. 20–3 165 n. 4
300. 20 150. 204 n. 5
300. 22 279 n. 9
300. 23 277 n. 8
327. 20 137 n. 4. 282 n. 5
330. 31–331. 16 137 n. 4. 150–1. 214 n. 2. 282 n. 5
354. 9–10 278 n. 8
371. 33–372. 11 200. 201. 202. 202 n. 1. Evidence for men and women under increasing Love, *211–16*
381. 22–5 202
381. 29–30 50 n. 3. 150. 204 n. 6. 209. 233
381. 34 286 n. 9
382. 4–21 209 n. 2. 209. 232 n. 3. 286 n. 9
465. 10–13 249 n. 2
651. 26–9 124 n. 2
1121. 5–9 and 12–17 40 n. 1
1121. 17–21 28 n. 6
1123. 25–1125. 24 Comments on rest and movement, 6, *26–30*. Platonizing version of the cycle, 28 n. 3. 'Equal times', 68. An 'intelligible world', 99 n. 1. 100 n. 9. Representation of the minor alternation, misused by Millerd, 142, and by Solmsen, 185 n. 2. Comments on fr. 20, 223–4, 225. Aristotle's understanding of ἀκίνητοι, 252–3, 256–7, 259. Simplicius' quotations of Empedocles, 277 n. 3, 278 n. 9, 280, 283
1183. 21–1186. 35 Introduces Eudemus on rest and movement, 6, 19–20, *26–31*. The alternation of Love and Strife as a mythical device, 28 n. 5. 'Equal times', 68–9. On Anaxagoras (=Eudemus fr. 111 Wehrli), 78 n. 1. Quotation of fr. 30, 81–2. Quotation of fr. 28. 2, 139 n. 3. Quotation of fr. 27, as distinct from fr. 26a, *149–54*. Simplicius' quotations of Empedocles, 277 n. 6, 277 n. 7, 284 n. 2. Paraphrase of fr. 26. 1, 319. Knowledge of the *Katharmoi*, 327
1267. 20–8 165 n. 3
1272. 38–1273. 12 165 n. 3
1318. 25 150 n. 2. 283
1318. 26 137 n. 1. 281 n. 4

SOPHOCLES
Antigone
1025 112 n. 3
Oedipus Coloneus
1225 112 n. 3

STOBAEUS
Eclogae
edd. K. Wachsmuth et O. Hense, Berolini 1884–1923.
1. 10. 11b 137 n. 1. 281 n. 6
1. 15. 2a 139 n. 3
1. 15. 2b 277 n. 6. 284
1. 17. 3 71 n. 3
1. 18. 1c 74 n. 2. 124 n. 2
1. 49. 11 39 n. 2
1. 49. 45 *sub finem* 192 n. 2. 194 n. 6
1. 49. 60 334 n. 2
2. 31. 6 277 n. 2

SUDA
ed. A. Adler, Lipsiae 1928–38.
s.v. ἐθελυμνοί 266
s.v. Ἐμπεδοκλῆς 150. Bibliography, 343
s.v. ὦρος 85

SYRIANUS
Metaphysica
ed. W. Kroll, *CAG* vol. 6 pars 1, 1902.
42. 35–43. 28 100
79. 8–13 54 n. 1
118. 7 39 n. 2

THEMISTIUS
Physica
ed. H. Schenkl, *CAG* vol. 5 pars 2, 1900.
209. 17–22 30

THEODORUS PRODROMUS
Amicitia exsulans
ed. J.-P. Migne, *PG* vol. 133, 1864.
col. 1324. 2–9 100

THEOPHRASTUS
De causis plantarum
ed. F. Wimmer, Didot, Parisiis 1866; *BT* 1854.
librum 1 ed. R. E. Dengler, Philadelphia 1927.
1. 12. 5 194 n. 1
1. 21. 5 178. 189–94
1. 21. 6 193 n. 1
1. 22. 2–3 178. 190–4. 217
Historia plantarum
ed. F. Wimmer, Didot, Parisiis 1866; *BT* 1854.
ed. A. Hort, *LCL* 1916.
5. 9. 6 193 n. 1

THEOPHRASTUS (*cont.*)
Fragmentum de sensibus
ed. H. Diels, *Doxographi graeci*, Berolini 1879.
ed. G. M. Stratton, *Theophrastus and the Greek physiological psychology before Aristotle*, London and New York 1917.
1 304
7–24 335 n. 2
8 70 n. 2
9 Bibliography, 390
11 70 n. 2
16 309 n. 1
17 Bibliography, 365
20 175. 178. 191. 264
59–60 34–5. Bibliography, 365
ap. Simpl. *Phys.*
25. 23–4 (= *Dox. gr.* 478. 23–4) 103 n. 2
25. 24–6 (= *Dox. gr.* 478. 4–6) 37

THUCYDIDES
3. 21 68

TIMON
Fragmenta
ed. H. Diels, *Poetarum philosophorum fragmenta*, Berolini 1901.
60. 2 139

TYRTAEUS
Fragmenta
ed. E. Diehl, *Anthologia lyrica graeca*, *BT* fasc. 1, 3rd edn, 1949.
1. 54 23

TZETZES
Allegoriae Iliadis
ed. P. Matranga, *Anecdota graeca*, 2 vols., Romae 1850, vol. 1.
ed. J. F. Boissonade, Lutetiae 1851.
Prolegomenon 287ff. 268–9
1. 229ff. 268 n. 4
15. 28–36 268–9
Allegoriae in librum 1 Iliadis
A short prose summary of some of Tzetzes' main interpretations.
ed. P. Matranga, *Anecdota graeca*, 2 vols., Romae 1850, vol. 2, pp. 364–71.
vol. 2 pp. 365–8 268 n. 4
AnteHomerica
ed. F. S. Lehrs, Didot, Parisiis 1841.
62–75 268–9
Chiliades
ed. T. Kiessling, Lipsiae 1826.
5. 726–76 268–9
Exegesis in Iliadem
ed. G. Hermann, Lipsiae 1812.
pp. 41. 14ff. 46. 47–53. 268–9

TZETZES (*cont.*)
pp. 55–6 Animals corresponding to the elements, 192 n. 1, 194 n. 6. Wombs, perhaps taken from Empedocles, 215; apparently pangenetic, 232. The storm of the elements, 272. The manner of separation of the elements, 294–6

Scholia in Hesiodum
ed. T. Gaisford, *Poetae minores graeci*, vol. 3 of the edition Oxonii 1814–20, vol. 2 of the edition Lipsiae 1823.
vol. 3 p. 58 Animals corresponding to the elements, 192 n. 1. Wombs, perhaps taken from Empedocles, 215; apparently pangenetic, 232. The storm of the elements, 272. The manner of separation of the elements, 294–6

Scholia in Lycophronem
ed. C. G. Müller, Lipsiae 1811.
ed. E. Scheer, Berolini 1908.
507 286 n. 8
711 296 n. 8

VINCENT DE BEAUVAIS (VINCENTIUS BELLOVACENSIS)
Speculum quadruplex
edd. Benedictini Vedastini, 4 vols., Duaci 1624 (there are other editions).
Speculum naturale
vol. 1
1. 4 162
Speculum historiale
vol. 4
1. 1 162
3. 44 162

VIRGILIUS
Aeneis
6. 728–9 192 n. 2
6. 748 88
Georgica
2. 490–2 Bibliography, 371

VITRUVIUS
De architectura
ed. F. Krohn, *BT* 1912.
1. 4. 7 193 n. 1

XENOPHANES
Fragmenta
ed. DK.
ed. E. Diehl, *Anthologia lyrica graeca*, *BT* 3rd edn fasc. 1, 1949.
The numeration given is that of Diels–Kranz.
23 43
24 43
25 43. 97
26 43
ap. Herodianum
2. 16. 17–29 Lentz 109 n. 5

XENOPHON
Agesilaus
ed. E. C. Marchant, *OCT* [1920].
11. 3 111–12
Anabasis
ed. P. Masqueray, Budé 1930–1.
ed. K. Hude, *BT* 1931.
1. 9. 27 111–12
Cynegeticus
ed. G. Pierleoni, Berolini 1902.
ed. E. C. Marchant, *OCT* [1920].
7. 2 37

GENERAL INDEX

Ancient authors are cited in the general index if they do not find a place in the *index locorum*, e.g. Pythagoreans, and on some subjects of more general interest.

Modern works are cited in the general index only if they do not find a place in the bibliography, e.g. Ross in his editions of Aristotle.

ABRUCALIS. A variant for Empedocles in [Arist.] *De plantis*, 207

ABSTRACT. No proper conception of the abstract in Presocratic thought, 73–4, 241 n. 3, 247 n. 1, 336 n. 1. Cf. SPIRITUAL

ADAM, J. Edition of Plato's *Republic*, 89 n. 5

AETHER. The distinction of air and aether, 291–2

AETIUS
- Increasing speed, 46–53
- The rotation of the sun, 52 n. 3, 294
- Preserves an account of the cyclic system, 179
- The cyclic interpretation is lost in the account of the zoogony, 179, 231
- The conflict of birds and fiery fish: Aetius' account is a relic of the two zoogonies, 189–95
- The zoogony, 196ff.
- The manner of separation of the elements, 288ff.
- A possible paraphrase of fr. 22 in the account of pleasure and pain, as a result of misunderstanding Theophrastus, 309
- See also the *index locorum*

AIR. The distinction of air and aether, 291–2

ALDUS. Edition of Simplicius' *De caelo*, 266

ALEXANDER
- General Platonizing interpretation of Empedocles, but different from that of Simplicius, 13, 100–1, 173 n. 3, 184, 326
- Interpretation of Aristotle on rest and movement, 29–30, 38 n. 1, 252–3
- Association of rest and unity, movement and plurality, 40
- Aristotle's supposed misunderstanding of ἀκίνητοι, 252–3
- Ingenious disjunction of words, 252, 262–3
- Interpretation of Aristotle's criticism of the *dine*, 262–3
- Apparently paraphrased by Simplicius on the separation of the elements, 288
- See also the *index locorum*

ALLAN, D. J. Article on the text of Aristotle's *De caelo*, 12

Ἄλλοτε μὲν...ἄλλοτε δ' αὖ... Implication of repeated action in Homer and Hesiod, as an argument for the interpretation of fr. 20, 221–3

AMMON. Plutarch's account of the priests of Ammon, 54

Ἀμοιβαῖος. Implication of reciprocal exchange, as evidence for equal times, 82–3

Ἄν. Omission with the subjunctive in verse, 112

ANAXAGORAS
- Compared by Aristotle with Empedocles on the question of precosmic rest or movement, 10–14
- Probable use of στηρίζειν, 21
- Implication of Aristotle's remark on weight in Anaxagoras and Empedocles, 34–6

ANAXAGORAS (*cont.*)
Inclusion in Aristotle's account of precosmic rest or movement in the *De caelo*, 39–43
Probable reminiscence in Plato's account of precosmic rest in the *Laws*, 40–3
Classification by Aristotle in *Physics* 8 misunderstood by Kirk, 41 n. 4
Association of rest and movement with unity and plurality, 44
Speed as a separating factor in the cosmogony, 51–2
Compared by Aristotle with Empedocles on the question of eternal movement in *Physics* 8, 59–69
General comparison with Empedocles in Aristotle's estimation, 72–3
Anaxagoras' notion of cosmogonical time compared with Empedocles', 74–5
Aristotle's criticism of Anaxagoras on this point, 75
Anaxagoras' conception of change that continues indefinitely, compared with Empedocles, 77–8
Whether the world will have an end, 78 n. 1
Νοῦς is classed with Love and Strife as a moving cause, 103 n. 2
Nineteenth-century interpretations that equated Empedocles and Anaxagoras, 157
Anaxagoras' place in the Presocratic tradition, with special reference to the nature of νοῦς, 241–2, 245–6
Accused by Aristotle of failing to distinguish fire and aether, 292
Explanation of the earth's stability, 298
Included in Aristotle's account of like to like etc., 302–4
See also the *index locorum*

ANAXIMANDER
Inaccurate reports of 'eternal movement', 40–3
Significance of time, 74
A possible reminiscence of Anaximander's *arche* in Plato's *Politicus*, 96, cf. 144
Proportions of Anaximander's world followed by Empedocles, 134
Anaximander's place in the Presocratic tradition, 238–41
Explanation of the earth's stability, 298
See also the *index locorum*

ANAXIMENES
Inaccurate reports of 'eternal movement', 40–3
Anaximenes' place in the Presocratic tradition, 238–41
Explanation of the earth's stability, 298

ANIMISM. Whether Empedocles' animistic tendencies included a world-breath, 125–6, cf. 234

ἌΠΛΕΤΟΝ
Possible implication for the relative volumes of the elements, 136
The correct reading in fr. 17. 18, 136 n. 1, 278

ARISTOTLE
Evidence on rest and movement in Empedocles, 6, 7–19, 26
Supposed misunderstanding of ἀκίνητοι, 7–9, 252–61
Criticism of the *dine*, 15–16, 262–5
Character as an historian of philosophy, 17–19
Association of rest and unity, movement and plurality in his categorization of the Presocratics generally, 39–40; the implied classification of precosmic rest or movement in the Milesians, 40–3

ARISTOTLE (*cont.*)
Approximation of the cosmic cycle to an eternal world, 37–8, 73, 171–2
Change of cosmic speed, 53–4
Evidence on time, 56–7, 59ff.
Style of criticism whereby he makes Empedocles contradict himself, 63, 208–9, cf. 14 n. 1
General attitude to Empedocles, 72–4
Love and Strife classed as moving causes, 103
Relevance to the Presocratic tradition, 247
Implied reference to the storm of the elements, 269–70
Style of quotation: usually as if from memory, 285–6; but apparently not in the case of fr. 100, 291–2
On air and aether in Empedocles and Anaxagoras, 292
Criticism of Empedocles' soul in terms of λόγος and οὐσία, 334–6
See also the *index locorum*
Physics
Aristotle's account of Empedocles in the last book of the *Physics*. Evidence for rest and movement, 7–9, 15; misinterpreted by modern writers, 8, 17–19, 170–2, 252–3; and by Simplicius, 26–30; but shared by Eudemus, 30–1
Supposed misunderstanding of ἀκίνητοι, 7–9, 252–61
Evidence for equal times, 59–69; misunderstood by modern writers, 56–7, 60 n. 1; collated with Aristotle's criticism of alternation in the *Metaphysics* and his quotation of fr. 30, 80–5
As an account of alternation, especially the significance of the expression ἐν μέρει, 98–9
As evidence for the cyclic system, 169–77
Supposed paraphrase of κρατέουσι from fr. 26. 1, 319–20
'Ατάλαντος
Meaning when applied to Strife, 129ff.
As part of a false reading, 278
ATOMISTS
Conception of weight, according to Aristotle and Theophrastus, 34–6
No need for a moving cause, 43–4
Compared with Empedocles in Aristotle's estimation, 72–4
On space and non-being, 74 n. 1
Possibility of their being attacked by Plato in the *Timaeus*, 144 n. 5
Atomism in Lucretius, 153
Place in the Presocratic tradition, 243
Included in Aristotle's account of like to like, etc., 301–4
ATTRACTION OF OPPOSITES, *see* LIKE TO LIKE
ATTRACTION OF SIMILARS, *see* LIKE TO LIKE

BAYFIELD, M. A. Article on changes of mood, 111
BONITZ, H. *Index Aristotelicus*, 72 n. 10
BRACKETT, H. D. Omission of ἄν, 112 n. 3
BREATHING WORLD. 124–6
BURNET, J. Edition of Plato's *Phaedrus*, 39 n. 2
BURY, R. G. Edition of Plato's *Symposium*, 227 n. 3, 228 n. 2

CAESURAE. Use of continuous third foot trochaic caesurae dividing the line according to sense as a deliberate stylistic device in several authors, 322
CHANCE
Simplicius' illustration of chance in Empedocles, 150–1
Empedocles' conception of chance, 214
CHANTRAINE, P. *Histoire du parfait grec*, 109 n. 5
CHERNISS, H. F.
Loeb edition of Plutarch's *De facie*: emendation, 32; mistaken evaluation of Plutarch's evidence on the movement of the fully separated elements, 33–4
See also the bibliography 1935
CHRISTIANS. The Christian equation of the Sphere and the risen world, 100
CLAPP, E. B. The omission of ἄν, 112 n. 3
CLEANTHES. 71 n. 3. *See also* STOICS
COBET, K. G. Article in *Mnemosyne*, emendation of a passage repeated in the *Etymologicum magnum*, 266 n. 3
CORNFORD, F. M.
Loeb edition of Aristotle's *Physics*: rest and movement, 5–6; Aristotle's supposed misunderstanding of ἀκίνητοι, 252–61
Unpublished lecture notes: place of the golden age, 76; concentric spheres for the fully separated elements, 146 n. 1; the nature of the *daimones*, 325, 328–36
Plato's cosmology: on Pythagoreans, 121 n. 1, 124 n. 1; on the position of the περιωπή, 122; on the world soul ἔξωθεν, 145 n. 3
See also the bibliography 1912 and 1926
CRUSIUS. Article 'Märchenreminiscenzen' etc., 228 n. 3

DAIMON
The time of the *daimon*'s wanderings, 85–92
Where purified *daimones* go, 90, 97
The *daimones* in fr. 115 are in part the source of Aetius' 'all-element' animal, 194–5
Daimones in fr. 59 and the nature of Empedocles' *daimon*, 325–36, cf. 88, 235 n. 1
Daimones in Plato and Heraclitus, 332–4
DEMOCRITUS, *see* ATOMISTS
DENGLER, R. E. Edition of book 1 of Theophrastus' *De causis plantarum*, 191
DENNISTON, J. D. *Greek particles*, 112 n. 2
DETIENNE, M. *La notion du* daimon etc., 250 n. 1. See also the bibliography 1959
DIELS, H.
Doxographi graeci: emendation of Aetius, 5. 18. 1, 47; emendation of Aetius 5. 19. 5, 190; emendation of Aetius 5. 22. 1, 201 n. 2; punctuation of Aetius 2. 6. 3, 288
Berlin edition of Simplicius' *Physics*: accent of κρυφός, 20 n. 1.
Rh.M. (1881), 38 n. 1
Article 'Über Leukipp und Demokrit', 72.
See also the bibliography 1873, 1880, 1884, 1897, 1898 *bis*, 1901, 1903, cf. 1934
Διηνεκῆ. Implication in fr. 59, 234–6
DINDORF, W. Edition of Homeric *scholia*, emendation of a passage repeated in the *Etymologicum magnum*, 266 n. 3
Δίνη, *see* WHIRL

DIODORUS
The Diodoran group of cosmogonies comprises passages from Diodorus, Hermippus' *De astrologia*, Tzetzes' *Exegesis in Iliadem*, and his *Scholia in Hesiodum*
Distribution of animals among the elements on the principle of like to like, 192 n. 2, cf. 194 n. 6
The wombs: their nourishment, 206; perhaps taken from Empedocles, 215; apparently pangenetic, 232
The storm of the elements, 272–3
The manner of separation of the elements, 294–6
See also the *index locorum*
DREAMS
Philoponus' account of dreams in Empedocles, said to be a misunderstanding, 203 n. 4
The dream of spatial existence in Plato, 240

EBELING, H. *Lexicon Homericum*, 132 n. 1, 221 n. 1
Εἶδος. Meaning 'heat', spelling, 204 n. 2
'Ενδελεχῶς. Whether it means continual or continuous, 36–8
'Ενέρτατον βένθος. Whether it describes the centre or the circumference, 106–7, 113–16, cf. 149
EPICUREANS. Connection with the zoogony, 211–16
EQUALITY
The meaning of δι' ἴσων χρόνων in Aristotle, 56–7, 59–69
Other possible distinctions of time, 69–76
Equal times and the balance of the cycle, 76–80
Equal times in fr. 30, 80–5
General importance of equality for Empedocles and others, 70 n. 2, 83
The meaning of ἴσά τε πάντα: in relation to time, 76–80; in relation to volume, 133 n. 1; probable significance, 134–6
General significance of equal times in the structure of the cycle, 248–9
ETERNAL WORLDS
Empedocles' cycle treated by Aristotle as an approach to an eternal world: possible influence on later doxographers, 36–8; compared with the analysis in *Physics* 8, 61; as part of Aristotle's general estimation of Empedocles, 73
An eternal Sphere: in the Platonizing interpretation of Empedocles, 28, 99–101; and in some modern reconstructions, 157, 159ff.
See also REPEATED WORLDS
EVOLUTION. The sense in which Empedocles' zoogonial sequence is evolutionary, 197–9, 234–6.

FARQUHARSON, A. S. L. Edition of Marcus Aurelius, and the reading περιγηθέι, 284 n. 6
FISH. The fiery fish are a relic of the two zoogonies, 189–94
FORSTER, E. S. Loeb edition of the *De generatione et corruptione*, 302
FOUR PERIODS. A false or misleading modern interpretation of the cycle, 56–7, 60, 92–3, 158–9, cf. 244

FRAGMENT 35
Main interpretation, 104–20
Prior use in the argument: for the movement of the elements under total Strife, 25–6; for the transitional character of total Strife, 58–9
FRAGMENTS. Order of the fragments, 37, 201, 204–5, 210–11, cf. 184

GERNET, L. *Recherches sur le développement de la pensée juridique et morale en Grèce*, 331–2
GLEDITSCH, M. *Metrik der Griechen und Römer*, 322 n. 6
GLOSSES. Real or imaginary in Simplicius' texts of Empedocles, 109–10, 276–86
GOODWIN, W. W. *Moods and tenses*, 108 n. 1, 110 n. 3, 111
GROTIUS, H. *Dicta poetarum quae apud Io. Stobaeum exstant* etc., 139 n. 3
GUTHRIE, W. K. C.
Loeb edition of Aristotle's *De caelo*: intrusion of δυνατὸν ἦ, 12; translation of οἱ ἄλλοι, 41–2
Article on the Atomists, a criticism of Cherniss: 44 n. 3
See also the bibliography 1957, 1962, cf. 1965

HAMELIN, O. Commentary on Aristotle's *Physics*, 216
HEIBERG, I. L. Preface to the Berlin edition of Simplicius' *De caelo*, 284, bibliography, 338, 339
HERACLITUS
Compared with Simplicius' interpretation of Empedocles, 28
Plato's comparison of the Ionian and Sicilian Muses in the *Sophist*, main interpretation, 93–4, cf. 69, 101, 145, 177–8
Aristotle's similar comparison, 170–2
Heraclitus' place in the Presocratic tradition, 238–41, cf. 250
The sun is 'fed' by watery exhalations, as an example of nourishment by opposites, 304
Heraclitus omitted to provide for the nourishment of stars, 304 n. 2
ἦθος ἀνθρώπωι δαίμων, 332–4
See also the *index locorum*
HERMANN, G. Corrections to Hermann's texts of Tzetzes' *Exegesis in Iliadem*, 47, 295
HERMIPPUS
For his *De astrologia* as a member of the Diodoran group of cosmogonies, *see* DIODORUS
See also the *index locorum*
HESIOD
Implication of χάος γένετο, 42
Use of ὥρα, 85
See also the *index locorum*
HICKS, R. D. Edition of Aristotle's *De anima*, 301 ff.
HOMER
The influence of Homer's vocabulary on Empedocles: list of adaptations, 267; in particular μονίη, 22–5; ζωρός, 117; θέλυμνα, 266–7
Included in Plato's account of rest and movement, 39
The Homeric ὥρα, 85–6
Change of mood in Homer's similes, 110–12

HOMER (*cont.*)
Implication of repeated action in ἄλλοτε μὲν . . . ἄλλοτε δ' αὖ . . ., 221–3
The non-philosophical character of Homer's universe, 237–9
Lengthening of a short syllable *in thesi* before a mute and a liquid, 309–10
Use of continuous trochaic third foot caesurae dividing the line according to sense as a probable stylistic device, 322
Ὧρα. Whether it means year or season, and the interpretation of 30,000, 85–92
HOWORTH, R. H. The omission of ἄν, 112 n. 3
HUDE, K. Edition of Xenophon, 111 n. 2

Ἶδος
Meaning 'heat', spelling, 204 n. 2
Ἰσόστοιχος. Implication of equal and corresponding in Simplicius, 137, 278 n. 8

JANNACONE, A. Edition of Aristotle's *De anima*, 335 n. 3
JOACHIM, H. H. Edition of Aristotle's *De generatione et corruptione*, 301 ff.

KATHARMOI
Relation to the physical poem and fr. 30, 85–92
General relevance in the Presocratic tradition, 249–51, cf. 244, 248. Cf. *DAIMON*
KIRK, G. S.
Heraclitus, the cosmic fragments: 38 n. 2, 172 n. 1
Article on Anaximander, 38 n. 2
The Presocratic philosophers, 40–1; cf. bibliography 1957
KRUEGER, K. W. Edition of Herodotus, 112 n. 3

LACHMANN, K. Commentary on Lucretius, 297 n. 3
LA ROCHE, J.
Homerische Untersuchungen, 310 n. 2
W.S., on caesurae, 322 n. 6
LEAF, W. Edition of Homer, 322 n. 9
LEEUWEN, J. VAN. *Enchiridium dictionis epicae*, 322 n. 6
LEUCIPPUS, *see* ATOMISTS
LEWIS and SHORT. *Latin Dictionary*, *s.v.* inferus etc., 114–15
LIKE TO LIKE
Tradition of the distribution of animals among the elements on the principle of like to like, 189–95
In the zoogony, 204
In Aristotle's account of Democritus and others, and as a general principle in Empedocles and others, 301–4; with special reference to fr. 22, 305–13
Empedocles' adaptation of the principle to the action of Love and Strife 312–13, cf. 194 n. 3
LOBECK, C. A. On ὄψ, 267 n. 4
LONGO, O. Edition of Aristotle's *De caelo*, 12
L.S.J.
s.v. ἀνδρεῖος, 233
s.v. ἀπό, 307
s.v. ἀτάλαντος, 132 n. 1

L.S.J. (*cont.*)
s.v. βάθος, 115
s.v. βαθύς, 115
s.v. γυναικεῖος, 233
s.v. διά, 62
s.v. δίνη, 120
s.v. δῖνος, 120
s.v. ἐκεῖσε etc., 256
s.v. ἔνεροι etc., 115–16
s.v. ἐνθένδε etc., 256
s.v. ἔσχατος, 115–16
s.v. ἶδος, 204 n. 2
s.v. ἰλυώδης, 295 n. 2
s.v. καθύπερθε, 320
s.v. οἷος, 184 n. 3
s.v. πολύκλαυτος, 233
s.v. ῥύμη, 52
s.v. στροφάλιγξ, 120
s.v. ὥρα, 85
s.v. ὧρος, 85
Missing citation (μονίη), 23
Meaning questioned, (ὥρα) 85–6, (ἰσόστοιχος) 278 n. 8
False reference noted (ἰσόστοιχος), 278 n. 8

Maas, P. Emendation of fr. 28. 1, 139 n. 3
Macan, R. W. Edition of Herodotus, 85
Marchant, E. C. Edition of Xenophon, 111 n. 2
Marriage. Baneful effects of, 209–10, cf. 187–8
Masqueray, P. Edition of Xenophon, 111 n. 2
Meineke, A. Edition of Stobaeus, 309
Melissus
Criticized by Aristotle, 73
Place in the Presocratic tradition, 241
See also the *index locorum*
Menestor of Sybaris. Fiery plants, 193 n. 1
Μέρει. Significance of the phrase ἐν μέρει in Aristotle, 98–9, cf. 67
Metre
Γεγάκασι fr. 23. 10, 109 n. 5
Lengthening of a short vowel before a mute and a liquid *in thesi*, 309–10
Use of continuous third foot trochaic caesurae dividing the line according to sense as a deliberate stylistic device, 322
Μίγνυσθαι. Question of hostile or non-hostile connotation in fr. 59, 326
Modern attitudes to the general character of Empedocles' thought, especially 71–4, cf. 248–9
Mondolfo, R. Article on Heraclitus, 93
Μονίη
Whether it means rest or oneness in fr. 27, 22–5
A derivation from Homer, 267
Monro, D. B. *Homeric grammar*, 112 n. 3

MOON. The position of Empedocles' moon, 134
MORAUX, P. Edition of Aristotle's *De caelo*, 12 n. 3
MOVEMENT, *see* REST AND MOVEMENT
MUELLER, K. *Fragmenta historicorum graecorum*, 52 n. 6
MUNK, S. *Mélanges de philosophie juive et arabe*, proposed emendation of a fifth-century Hebrew work on Empedocles, 33 n. 2

NECESSITY. The oath and necessity joined to the idea of equality, 248–9

OATH. 88–9, 248–9
O'BRIEN, D.
  Articles, 73 n. 2, 134 n. 2
  See also the bibliography 1965
ORPHICS
  'Breathing out' evil, 126 n. 4
  Phanes, 228
  General otherworldly religious influences on Empedocles, 229, 249–51
  See also the *index locorum*

PAGE, D. L. Edition of Euripides' *Medea*, 115 n. 2
Πάγος. The crystalline firmament, formed as part of the process of separation of the elements, 287–91, 299–300
PARMENIDES
  Association of rest and movement with unity and plurality, 44
  Place in the Presocratic tradition, 69–70, 237, 239ff.
  Compared with Empedocles in Aristotle's estimation, 72
  Influence on Empedocles' conception of cosmic time, 74–5, and of change and movement, 77ff.
  See also the *index locorum*
PAULSON, J. *Index Hesiodeus*, 221 n. 1
PECK, A. L. Loeb edition of Aristotle's *De generatione animalium*, 331 n. 1
Περιηγέι
  Thought to determine the meaning of μονίη in fr. 27, 22–3
  False reading, 276, 284–5
Περιγηθέι. The true reading in fr. 27, 22, 276, 284–5
Περιωπή. The place of the περιωπή in Plato's *Politicus*, 122–3
PHANES. 228
PHILOPONUS
  Unreliable evidence on two rest periods in each cycle, 30
  General Platonizing interpretation of Empedocles, 100–1
  His knowledge of Empedocles is in general derived from Aristotle, 203
  His account of dreams is said to be mistaken, 203 n. 4
  Unreliable evidence on the zoogony: separate limbs and monsters, 203; whole-natured creatures, 207–9; men and women under increasing Love, 212–13
  The reading of fr. 21, 226 n. 1, 285 n. 8
  On the movement of the elements, 269
  See also the *index locorum*

PLATO. Plato's notion of weight according to Aristotle and Theophrastus, 35
Evidence on rest and movement
Plato's own association of rest and movement with unity and plurality, 38–9
His implied classification of precosmic rest or movement in the Milesians, 41–3
The Politicus myth
The correlation of the time of cosmic change and the sum of incarnations, 90–2
Equivalent of total Strife, 94–8
Absence of a direct equivalent for the Sphere, 96–8
Location of the περιωπή, 122–3
As evidence for alternation, 177
The storm of the elements, 271
Sophist
The account of the Sicilian Muses, especially 93–4, 177–8, *see also* 69, 95, 101, 145, 172 n. 1
Symposium
Influence of the zoogony on Aristophanes' speech, 227–9
Timaeus
Comparison of the Demiurge and Love: implied in Aristotle, 12–14; explicit in Plutarch, 31–4, cf. 273
Possible reminiscence of the 'aloneness' of the cosmic god, 22–3, 144–5
Position of the world-soul 'outside' the elements, 145
Influence of the *Timaeus* on later theories of the distribution of animals among the elements on the principle of like to like, 192 n. 2
Possible reminiscence of the 'rule' of the elements, 317 n. 2
Plato's *daimones* and the times of reincarnations, 86, 88, 90–2, 332, 334
Implied criticisms of Strife as cause of evil in the *Sophist* and *Politicus*, 95
Plato's resolution of Eleatic problems and his relevance to the Presocratic tradition, 240ff., especially 240–1, 246–7, 251
See also the *index locorum*
PLATONIZING INTERPRETATION OF EMPEDOCLES
In Simplicius, 28–9, 69, 99–101
In Alexander and others, and its similarity to Plato's own understanding of the cycle, 69, 99–101
Influence on modern interpretations, 4 n. 1, 6, 157, 159ff., especially 184–5
Cf. 13, 97, 122 n. 2, 137, 142, 173 n. 5
Πλάζεσθαι. Zoogonical implication, 226–7
PLUTARCH
De facie
The condition of the elements under total Strife, especially movement, 6, 20, 26, 31–6
Perhaps supported by a paraphrase in Simplicius, 36
The arrangement of the elements in concentric spheres, 147–9
The distinction of frr. 26a and 27, 149–54
Evidence for the cyclic system, 168, 178; misunderstood by Hölscher, 178, and Solmsen, 188
Plutarch's work on Empedocles
Plutarch's book, 32–3
Ignored or not fully taken into account by modern scholars, 33 n. 2, 178, 226 n. 1

PLUTARCH (*cont.*)
Possible use by Hippolytus, 210 n. 3
Possible use by Tzetzes, if only indirectly, 269, 272
Other points
Plutarch's appreciation of the notion of weight in ancient thought, 34–6
Reflection of the storm of the elements in the *De esu carnium*, 49–50, 54 n. 3, 271–2
Style of quotation, 152
Evidence on the nature of Empedocles' *daimones*, 330–4, 336
See also the *index locorum*
Πολύκλαυτος. Implication for the nature of the οὐλοφυῆ, 232–3
PORES. 74 n. 1
PREGNANCY. Association with a cosmic increase of speed and the storm of the elements, 46–8, 50
PURIFICATIONS. *See* KATHARMOI
PYTHAGOREANS
Associations of rest and movement with unity and plurality in the lists of opposites, 43–4
Time, 74
Central fire, 120–1
Influence on the positioning of Plato's περιωπή, 122–3
World-breath, 124–6
Repeated worlds, 126 n. 5
General character of their thought, 250 n. 1

RAVEN, J. E.
Pythagoreans and Eleatics, 44 n. 2
See also the bibliography, 1957
REINCARNATION. Accounts of reincarnation which are attached to specific times, 85–92. Cf. *DAIMON*
RELIGION
Empedocles' place in the development of religious thought and experience in the fifth and fourth centuries, 249–51, cf. 229
Cf. KATHARMOI and ORPHICS
REPEATED WORLDS
Lost in the Platonizing interpretation of Empedocles, especially 28–9, 99–101; and in part of the doxographical tradition, 36–8, 179, 231; as well as in some modern accounts, 5–6, 157ff.
Accounted by Aristotle as an approach to an eternal world, 37–8, 73, 171–2
Whether introduced by Empedocles, 38, 43 n. 2
In Pythagorean thought, 126 n. 5
Preserved in the account of Empedocles given by Aristotle, 169–77, and by Plato, Plutarch and others, 177–9
REST AND MOVEMENT
In Empedocles, chapter 2 pp. 4ff.
In other Presocratics, and in Plato's and Aristotle's categorizations of the Presocratics, 6–7, 38–45; with special reference to the reports of 'eternal movement' in the Ionians, 40–3

REST AND MOVEMENT (*cont.*)
Movement of the elements in different directions, 35–6, 147–8, 149 n. 3, 173–4, 214, 264
Strife as cause of movement, and Love as cause primarily of rest, 53, 101–3; as the result of Parmenides' influence, 244–9
RICHARDSON, H. Article on Pythagoreans, 121 nn. 1 and 4, 124 n. 1
ROBIN, L. Edition of Plato's *Phaedrus*, 39 n. 2. See also the bibliography 1918, 1923, cf. 1932, cf. 1948, cf. 1963.
ROCHE, *see* LA ROCHE
ROSS, W. D.
Edition of Aristotle's *Metaphysics*: 44 n. 2; bibliography, 363
Edition of Aristotle's *Physics*: on teeth in Aristotle's account of chance survival, 213 n. 3; on Aristotle's supposed misunderstanding of ἀκίνητοι, 252–61; on the structure of the manuscript tradition, 259
Edition of Aristotle's *De anima*: on like to like, 301 ff.; on the reading μέλεσιν or μέρεσιν, 335 n. 3

SANDBACH, F. H. Information on manuscripts of the so-called Lamprias *Catalogue* of Plutarch's works, 33 n. 2
SCALIGER, J. J. Emendation of fr. 17. 5, 164.
SCHAEFER, G. H. On καμμονίη, *ap.* Peyron, 24
SCHAHRASTANI. Bibliography, 386–7
SCHNEIDER, J. G. *Griechisch-Deutsches Wörterbuch*, emendation of fr. 127, 279 n. 1
SCHWYZER, E. *Griechische Grammatik*: στήκειν, 106 n. 1; γέγακα, 109 n. 5; omission of ἄν, 112 n. 3; use of the dative, 307
SCOTT, W. *Hermetica*, 194 n. 6
SEA
The sea's origin as the effect of increasing speed, 52
Caused by rotation and compression of the sun, 52 n. 3, 294, 296, 299–300
SEX
Pregnancy, 46–8, 50
Plato's description of Ἔρως, 129 n. 2
Empedocles' disciples are warned of the baneful effects of marriage and sex, 187–8, 209–10
'Mixed' sex in the whole-natured creatures, 205–7; in plants, 206–7, 234; in monsters, 207; and in the Orphic god Phanes, 228
Sexual intercourse is insufficient as an explanation of fr. 20, 220
Distinction of man and beast in Empedocles' account of sexual passion, 232–3
SIMPLICIUS
Evidence on rest and movement in Empedocles, 5, 6, 26–31
Quality of his exemplar, and his style of quotation, 22, 109–10, 276–86
Platonizing interpretation of Empedocles: in general, 28–9, 69, 99–101; influence on Millerd's conception of the battle between Love and Strife, 142–3; wrongly used by Solmsen as an argument against the cyclic system, 184–5
Possible paraphrase for Plutarch's description of total Strife in the *De facie*, 36
Association of rest and unity, movement and plurality, generally, 40, and with special reference to the atomists, 44 n. 3

SIMPLICIUS (*cont.*)
On Aristotle's 'equal times', 68–9, cf. 319
Placing of fr. 30, 82
Conflict with Alexander, 100–1, 184–5, 223–4, 263, cf. 122 n. 2
Extent of his knowledge of the poem, with special reference to the distinction of frr. 26a and 27, 149–54, cf. 213, 276; limited knowledge of the *Katharmoi*, 327
Wrongly refers ἐπὶ τῆς φιλότητος to the Sphere at one point, 176, 201; confuses the major and the minor alternation, 319 n. 5, cf. 68–9
On Aristotle's criticism of the *dine*, 177, 262–4
Zoogony: on monsters and the meaning of ἐπὶ τῆς φιλότητος, 200–2, cf. 211–16; on the nature of the οὐλοφυῆ, 209; on the separation of οὐλοφυῆ, 209–10; account of men and women under increasing Love, 211–16
Supposes that Aristotle has misunderstood ἀκίνητοι, 252–3, 256; possibly the source of the alternative reading ἐνθένδε ἐκεῖσε in Aristotle's note, 259
SPHERE
Misuse of the term in modern writings, 4 n. 2
As the intelligible world, especially 28–9, 99–101, 184–5
Duration, 38 n. 1, chapter 4 pp. 55 ff., 148 n. 2
Reminiscences in Plato's *Politicus*, 96–8
False interpretation by modern writers as part of the evidence on alternation, 160–1, 161–2, 173–4
Relevance in the Presocratic tradition, 242 ff., and different from Anaxagoras' pre-cosmogonic mixture, 245
SPIRITUAL. No proper conception of the spiritual in Presocratic thought, 241 n. 3, 247 n. 1. Cf. ABSTRACT
SPOERRI, W. *Späthellenistische Berichte* etc., 232 n. 2
STEPHANUS, H. (= H. Estienne *Le Grand*)
Thesaurus graecae liguae (Didot, Parisiis, 1831–65): *s.vv.* βάθος and βαθύς, 115; *s.v.* ἐνέρτατος etc., 114
Poesis philosophica etc.: 164 n. 1; bibliography, 338
Στηρίζεσθαι. In Anaxagoras and as used of the Sphere, 20–5
STOICS
The time of their conflagration, 71, 75
Attacked by Plutarch with the help of verses from Empedocles, 148
Nourishment of the stars, 304 n. 2
STORM OF THE ELEMENTS
Main treatment, 268–73
As evidence for the time of increasing speed, 49–50
Reflected in Plato's *Politicus*, 94, and in Lucretius' cosmogony, 153. Cf. 143, 148, 230
Στροφάλιγξ. Order of words in fr. 35, ἐν δὲ μέσῃι Φιλότης στροφάλιγγι, 116. Cf. WHIRL
STYLE
Possibility of a double sense of μονίη, 24
Conceivable play on ἐν τῆι δή and ἔνθ' ἤδη, 113
Play on the order of words, ἐν δὲ μέσῃι Φιλότης στροφάλιγγι, fr. 35. 4, 116
Significance in the order of enumeration of the elements, 140

STYLE (*cont.*)
Parallel verses: listed, 151 n. 3; particular cases, fr. 17. 6 etc., 37; frr. 26a and 27, 148, 149–54; fr. 26 as a summary, 210–11; fr. 17. 35 etc., 224
Arrangement of clauses in frr. 20 and 21, 226
Derivations of vocabulary from Homer, 267, cf. 22–5, 117, 266–7
Distinction of air and aether in fr. 100, 291–2
Use of caesurae, 322
Schematized arrangement of verses in fr. 17, 323–4
SUCCESSIVE WORLDS, *see* REPEATED WORLDS
SUN
Increase in speed, 46ff.
Account of the sun's formation included in Strife's cosmogony, 50
The rotation of the sun as cause of the sea's origin, 52, 294, 296
The position and size of Empedocles' sun, 134

TAYLOR, A. E. *Commentary on Plato's Timaeus*: Pythagoreans, 126 n. 5; on the position of the world-soul ἔξωθεν, 145 n. 3
TEILHARD DE CHARDIN. Theories of evolution, 199–200
TELEOLOGY
Simplicius' illustration of chance in Empedocles, 150–1
The sense in which the zoogonical sequence was continuous, 197–9, 234–6
Empedocles' zoogony was not deliberately anti-teleological, 214–15
THALES. The notion of a 'moving unity', 40ff.
Θέλυμνα. Reading in fr. 21. 6, 35–6, 266–7, 280
TIME
The temporal division of the cycle, chapter 4, pp. 55–103
A transitional time of total Strife, 58–9
Aristotle's 'equal times', 59–69
Unlikeliness of an instantaneous Sphere, 69–70
Unlikeliness of three equal times, 70–1
Stoic time, 71, 75
Time in Anaximander, Pherecydes, Pythagoreans, 74
Time in Anaxagoras, 74–5
The time of the golden age, 76 n. 2, 250–1
The correlation of equal times with fr. 30, 80–5
30,000 seasons, meaning, and possible correlation with the cosmic cycle, 85–92
Times attached to beliefs in reincarnation, including Plato, 86, 87–8, 90–2
The temporal interpretation of fr. 35, 108–13
Increasing Love was thought of as in the past, 174–5, 191–2, 205, 223, 231, 263, 270–2
Temporal limitations of Homeric thought, 237–8
The significance of time in the Presocratic tradition: in Anaximander and Heraclitus, 238; in Parmenides, 239ff.; cosmogonical time and cyclic succession, 242ff.
TREU, M. *Der sogenannte Lampriascatalog der Plutarchschriften*, 33 n. 2
TZETZES
Corrections to Hermann's edition of Tzetzes' *Exegesis in Iliadem*, 47, 295
For Tzetzes' *Exegesis in Iliadem* and his *Scholia in Hesiodum* as part of the Diodoran group of cosmogonies, *see* DIODORUS

UNLIKE TO UNLIKE, *see* LIKE TO LIKE

VOID. 74 n. 1
VOSSIUS, I. Emendation of Hesychius, 266 n. 2

WACHSMUTH, K. Edition of Stobaeus, emendation of fr. 28. 1, 139 n. 3
WEHRLI, F. Edition of the fragments of Eudemus, on rest and movement, 30 n. 4
WEIGHT
The sense in which Empedocles' elements had weight, and the conception of weight among the Presocratics and Plato generally, 34–6
The fall of earth prevented by the *dine*, 51, 262–5, 298–9
WHIRL
Aristotle's criticism of the whirl, 15–16, 177, 262–5
The beginning of rotation of day and night, 21
The beginning of rotation in Strife's cosmogony, 21 n. 4, 296–300
The whirl in fr. 35, especially 25–6, 118–20
The whirl in Strife's cosmogony, 51–2
Rotation and compression as cause of the sea's origin, 52, 294, 296
Whether the earth rotates, 52 n. 3
There were not two whirls, 120 n. 2
The whirl prevents Empedocles' earth from falling, 51, 262–5, 298–9
The beginning of rotation, 296–9
Cosmogonical force, summary, 299–300
WILAMOWITZ-MOELLENDORFF, U. VON
Aeschyli tragoediae, 86 n. 2
Notes recorded in later editions of DK: θρυφθεῖσα in fr. 17. 5, 165 n. 2, τοῖ' οἷα in fr. 71. 3, 184 n. 3
See also the bibliography 1902, 1905, 1929, 1930 *bis*, cf. 1935

XENOPHANES
Association of unity and rest, 43
Place in the Presocratic tradition, 250
See also the *index locorum*

ZENO. 71 n. 1
ZENODOTUS. 114
Ζωρός
Meaning in fr. 35. 15, 117
Derivation from Homer, 267